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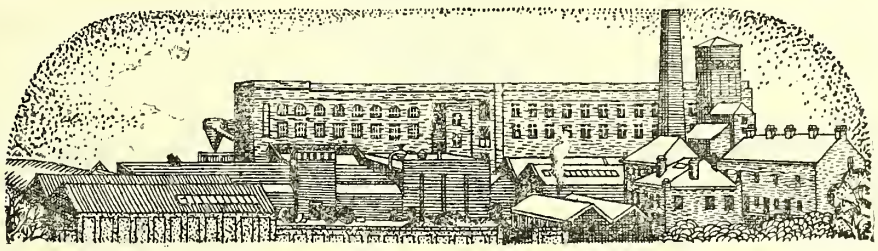
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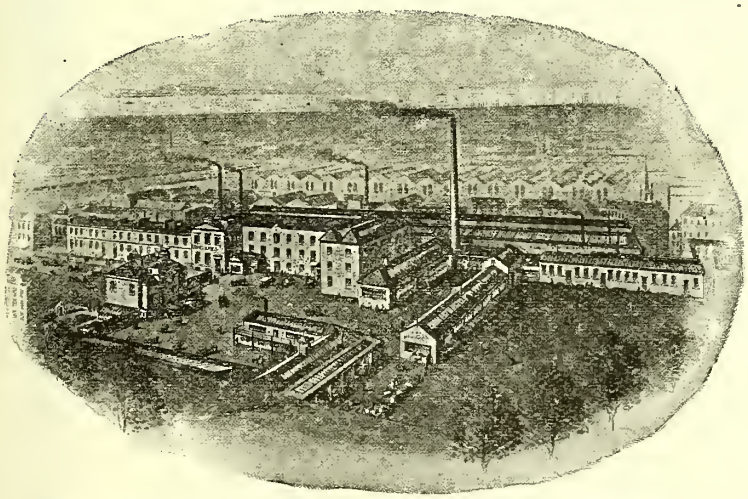
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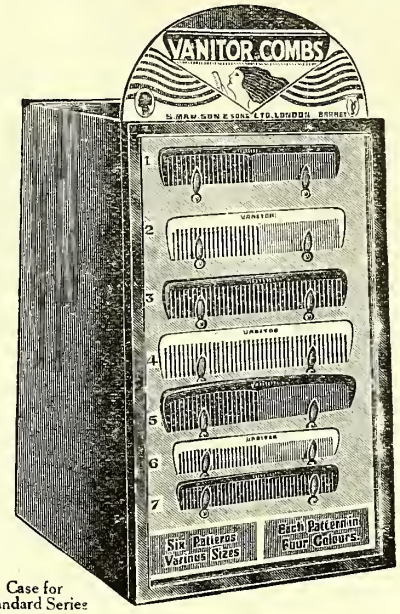
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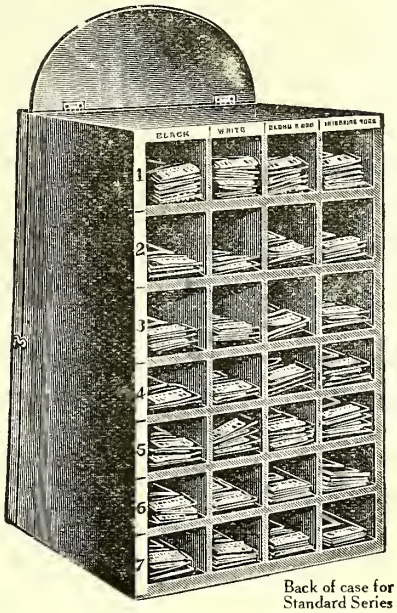
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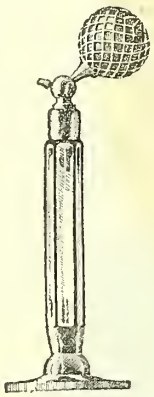
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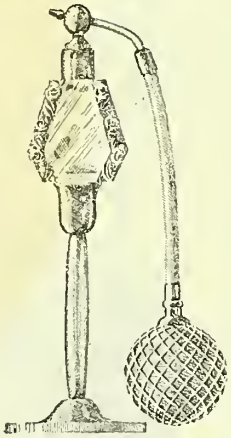
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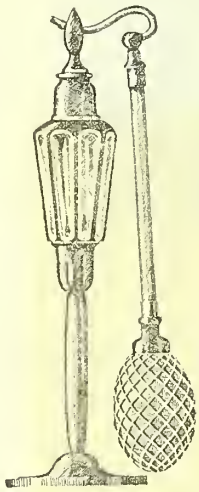


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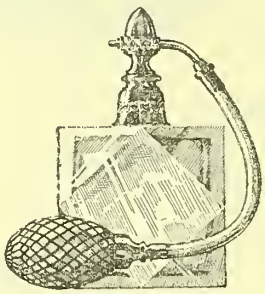


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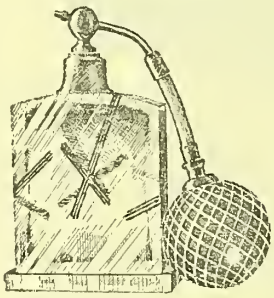
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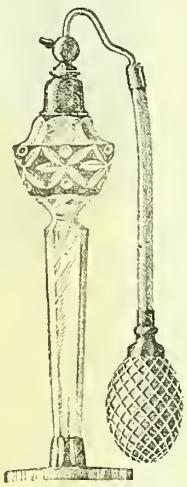
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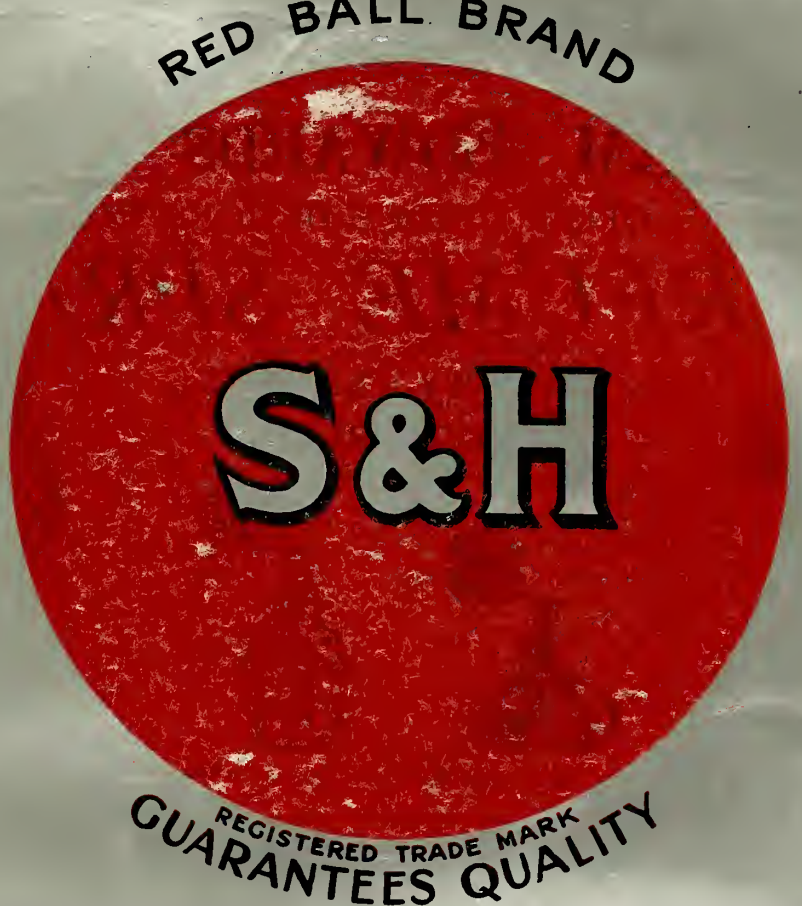
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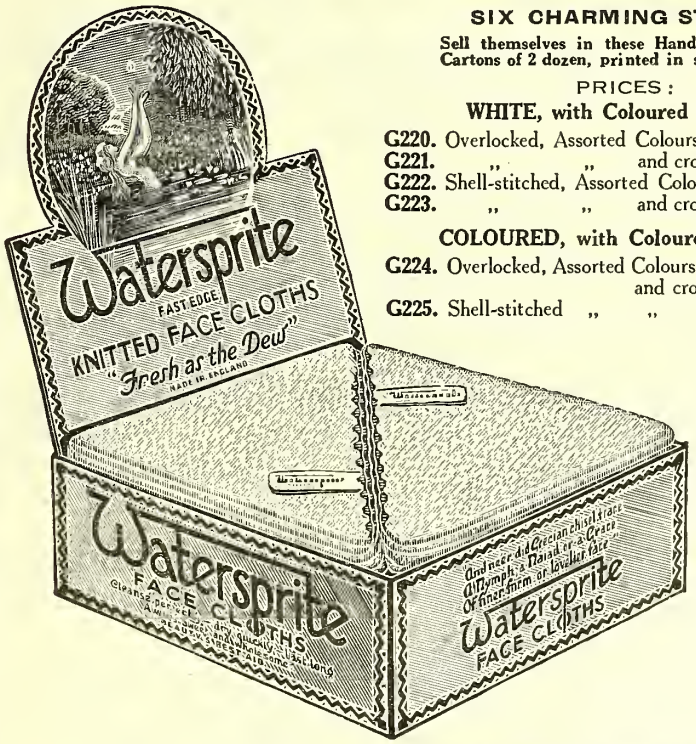
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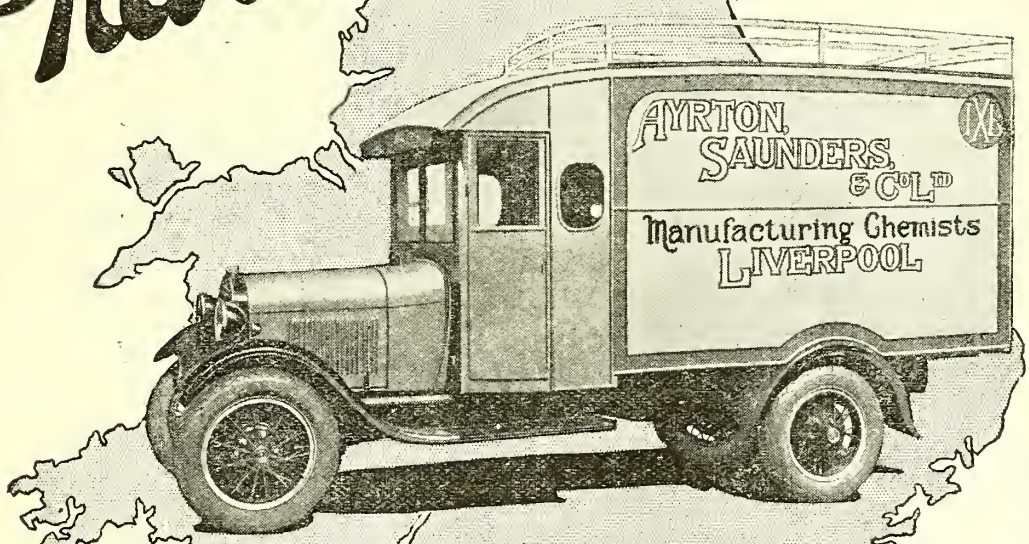
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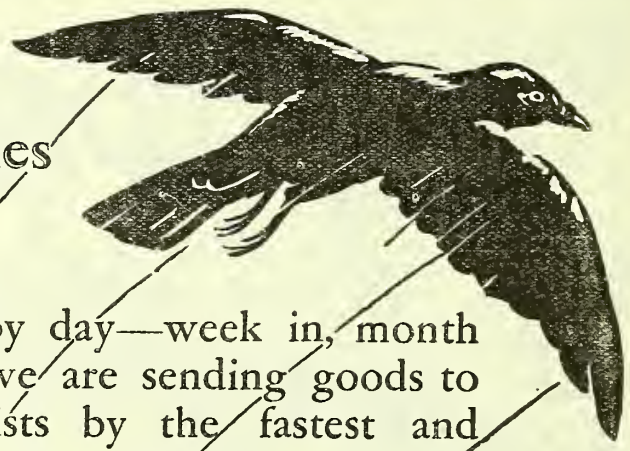
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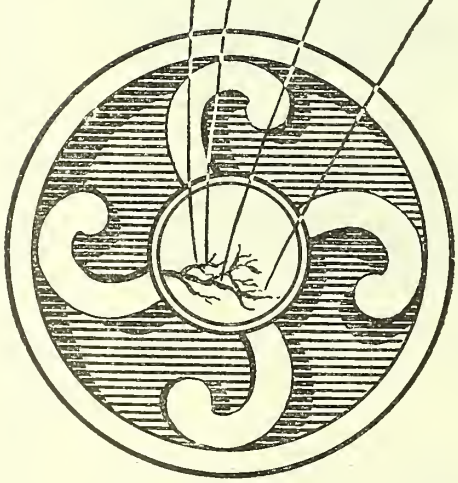


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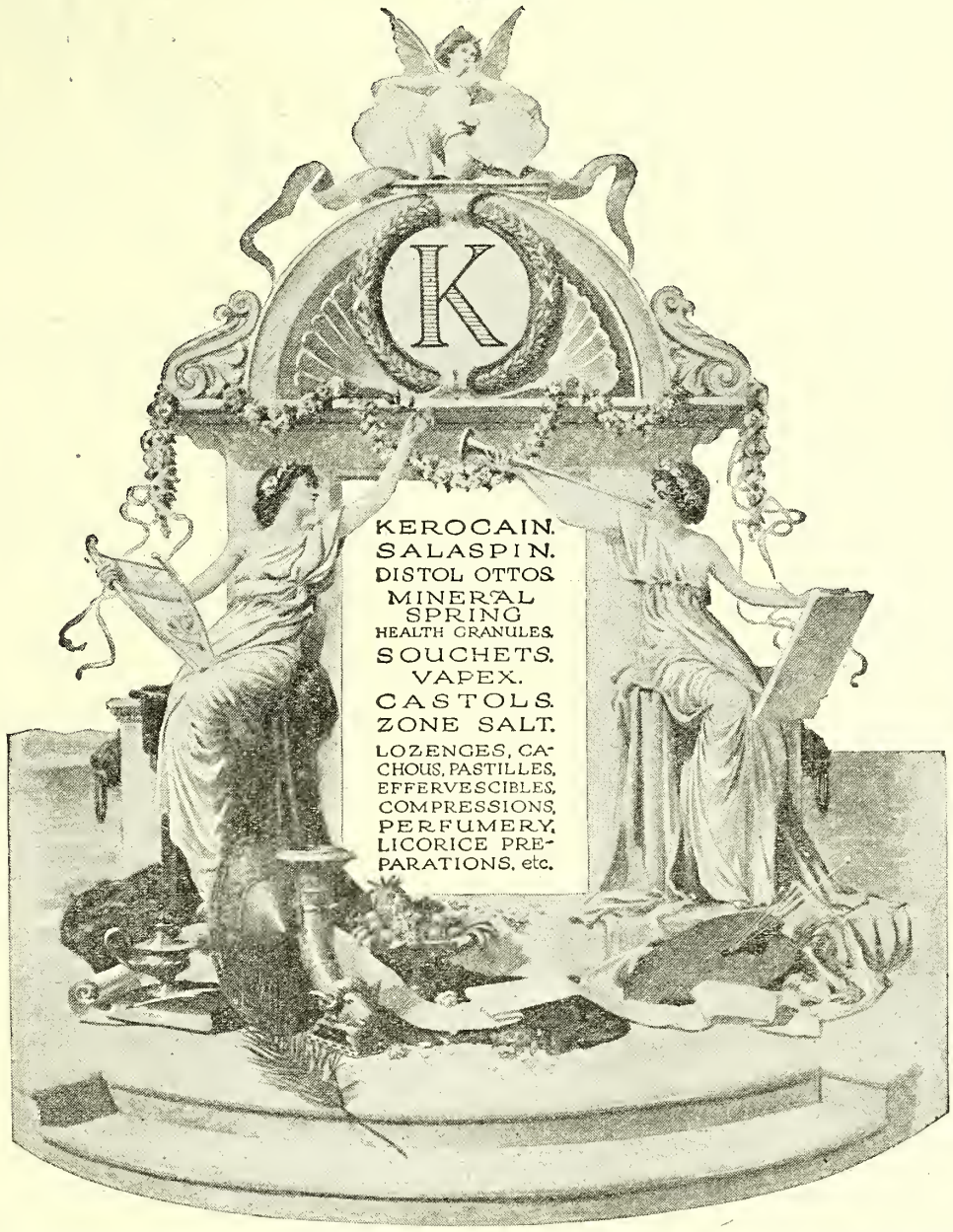


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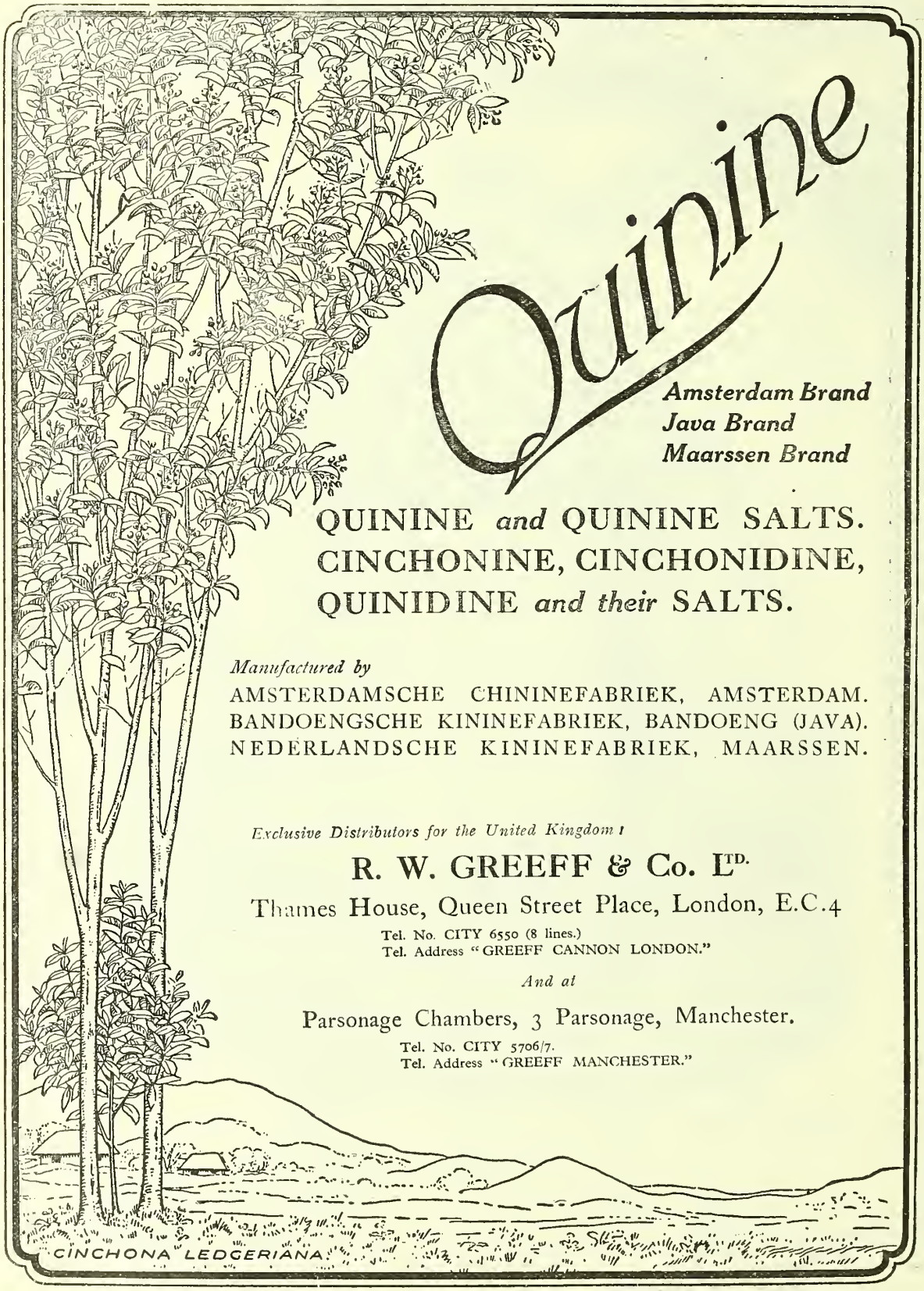


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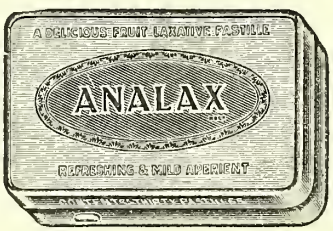
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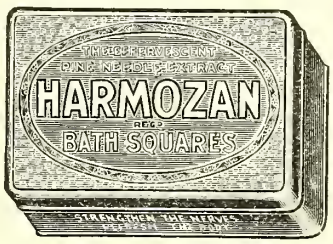
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P.A.T.A. 6 squares 2/-; per doz. 16/-
„ 12 „ 3/9; „ „ 30/-

68 Salusbury Rd., and Montrose Avenue N.W.6

the original combined Cream and Powder

la VELOUTY

de DIXOR Paris



The advertised line that you are asked for.

NOW ON P.A.T.A.

Samples free upon receipt of trade card or billhead.

PRICES :—Full size pot -	21/- doz.	RETAIL	2/9
Super tube -	22/- ,,	,,	3/-
Large tube -	14/- ,,	,,	2/-
Medium tube	7/- ,,	,,	1/-
Handbag tube	3/- ,,	,,	6d.

Made in four shades :

WHITE, IVORY, NATURAL and OCHRE.

Obtainable from your regular Wholesaler or direct from the Sole British Agents :

DEBACQ & HARROP,

68 Newman Street, Oxford Street, London, W.1.

Sole Distributors for

Northern Ireland : ROBERT MAYRS & CO., 43 Chichester Street, BELFAST
Irish Free State : MAY ROBERTS & CO. LTD., Grand Canal Quay, DUBLIN

A well-kept hand is the hall mark of refinement !

WILL YOU ACCEPT 6/- EXTRA PROFIT ?

(CASH WITH ORDER ONLY)

"Veldt Cream" *the unequalled preparation which does whiten hands and arms, is now packed in*

3d. Tubes (½oz.) 3 dozen in Show Box

LINK UP WITH OUR NATIONAL ADVERTISING BY DISPLAYING PROMINENTLY

IT SELLS ! IT SELLS ! ! IT SELLS ALL THE YEAR ROUND ! ! !

We look upon this 3d. tube as a form of sampling, yet bringing *you* profit. Send us a P. O. or check for 27/- for one gross and we send you

ABSOLUTELY FREE ½ *doz.* 1/- *size* (3 *oz. bottles*)

in handsome container for counter. This is a *permanent* offer and a form of supplementary advertising. Show matter included carriage paid, or try one 3 doz. show box from your usual patent house.

Sole Manufacturers : The "Veldt" Laboratory. *Louth, England*



POWDER PUFFS

de Luxe

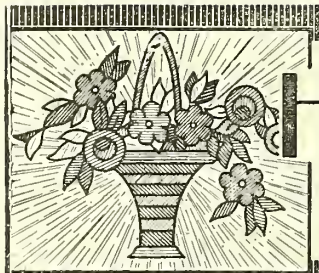
Embracing every type of Powder Puff in vogue, either Swansdown, Lambswool, Cotton, Velour or Beaver. The three former in white or a large variety of tints.

WE SPECIALISE IN THE MANUFACTURE OF POWDER PUFFS AND CONSEQUENTLY ARE ABLE TO EXECUTE IN SUCH A PERFECT FINISH THAT THE ARTICLE CAN ONLY BE DEFINED BY THE WORDS "DE LUXE"

As Manufacturers to the Wholesale & Shipping Trades only we are prepared to produce for any Wholesale House a pattern for their exclusive use.

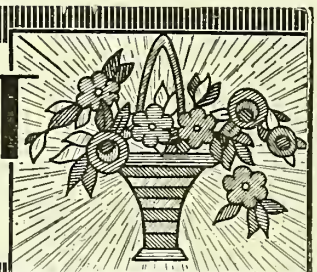
WILLIAMSON BROS. LTD

177 SOUTHWARK BRIDGE RD., LONDON, S.E.1



HOUBIGANT

PARIS
The leading Perfumer
Established 1775



THE PERFUMES AND TOILET PREPARATIONS

of exclusive quality made by Parfumerie Houbigant and Parfums Cheramy in Paris, and supplied by us, offer an ever-increasing scope to the up-to-date Pharmacist to add to his profit; and to please his Customers.

OUR FACE POWDERS AND COMPACTS

are known and appreciated universally; and are in constant demand.

THE NEW LINES

we place on the market enable you and your Customers to keep up-to-date in all creations of French Toilet Preparations. We supply Testing-Bottles and Sachets for sampling purposes.

Send for our Price Lists

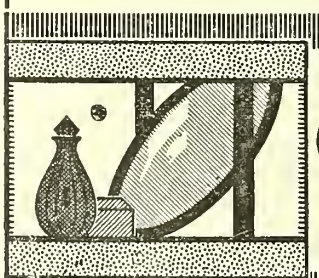
and make a note of the Perfumes and Toilet Preparations we can supply; and which it will pay you to stock.

Up-to-Date SHOW MATERIAL supplied.

PARFUMERIES DE PARIS, LTD.

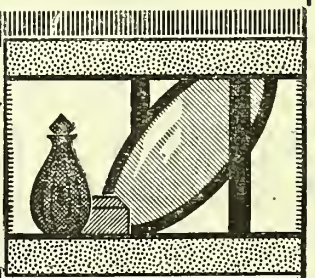
ACTON, LONDON, W.3

'Phone : Chiswick 1525. *Telegrams : "Pariparfum Act London."*

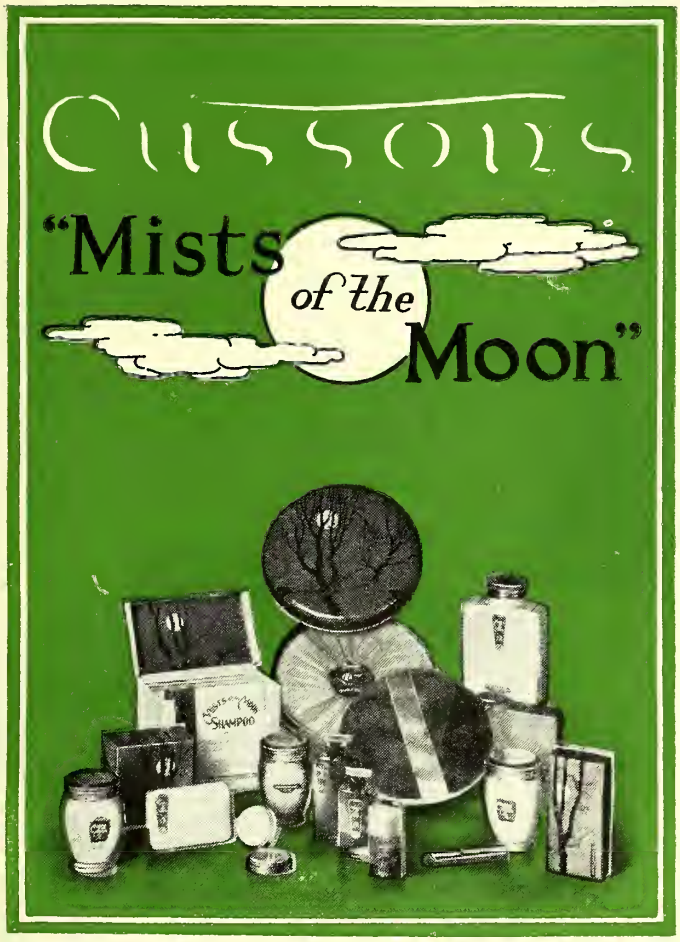


CHERAMY

PARIS



Rapidly growing demand for



We have ample proof that the "Mists of the Moon" Toilet Suite (the perfume of English flowers wet with moonlit dew) has "caught on" wherever it has received adequate support from retailers.

Regular repeat orders show that "Mists of the Moon" has captured the imagination of "Miss 1929," and every Pharmacist owes it to himself to share in the demand which we are creating.

Selling aids are supplied in lavish quantities. Write now for price list (in colours) and details of the generous profit margin on this new vogue in toilet suites.

Cussons' Baby Powder is the smoothest and purest made—any Pharmacist can readily prove the truth of this sweeping statement. Its soothing, refreshing, absorbent antiseptic qualities quickly impress themselves on customers. There is a 40% profit-margin on this all-British product.

Write for sample tin to—

CUSSONS
KERSAL VALE, MANCHESTER

A really good Baby Powder

is always in demand. You can offer no better value than——

Cussons'
"WHITE CROSS"
BABY
POWDER

Saville's

June

ENGLAND'S MOST POPULAR PERFUME

THE PHENOMENAL SUCCESS June Perfumery is due to its charming presentation and to the characteristic English quality of the perfume—a perfume reminiscent of an Old English Garden in the glorious month of June———that distinctive refreshing perfume which lives in the memory of England's children in whatever part of the world fortune takes them.



No. 54.

(Actual Size of Case 8¾" × 5½")
THE "ALL-IN" BEAUTY COMBINATION
Its Obvious Value Creates a Big Impression
RETAIL Each 7/6 ... PRICE Each 5/-



No. 57.

Actual Size of Case 4¾" × 2½")
HANDY SIZE
HANDY PRICE
RETAIL Each 2/6
PRICE Each 1/8



No. 53.

(Actual Size of Case 9¼" × 6½")
SOAP & PERFUME "ALWAYS ACCEPTABLE"
RETAIL Each 7/- PRICE Each 4/8

DISPLAY MATERIAL of unusual charm and effectiveness is a special feature of our service. Coloured illustrations of new window displays sent on request.

SAVILLE PERFUMERY LIMITED. WATFORD, HERTS

APPEALS TO THE ENGLISH TEMPERAMENT IN ALL MARKETS OF THE WORLD

THE June COFFRETS

Illustrated in these pages are of special interest to

OVERSEAS BUYERS

Seeking inexpensive and charming novelties for the

XMAS SEASON

The contents—all standard lines in the June Perfumery Series—are tastefully arranged in strong hand-made cases of particularly pleasing designs in harmony with the delightful colour scheme of the

June GET UP.



No. 55.

(Actual Size of Case 8¼″ × 6⅛″)
A HAPPY COMBINATION CHARMINGLY ARRANGED
RETAIL Each 6/- ... PRICE Each 4/-



No. 56.

(Actual Size of Case 6″ × 4¼″)
"FOR THE CONNOISSEUR"
STRONG HAND-MADE CASE, DOMED LID
RETAIL Each 10/6 ... PRICE Each 7/-

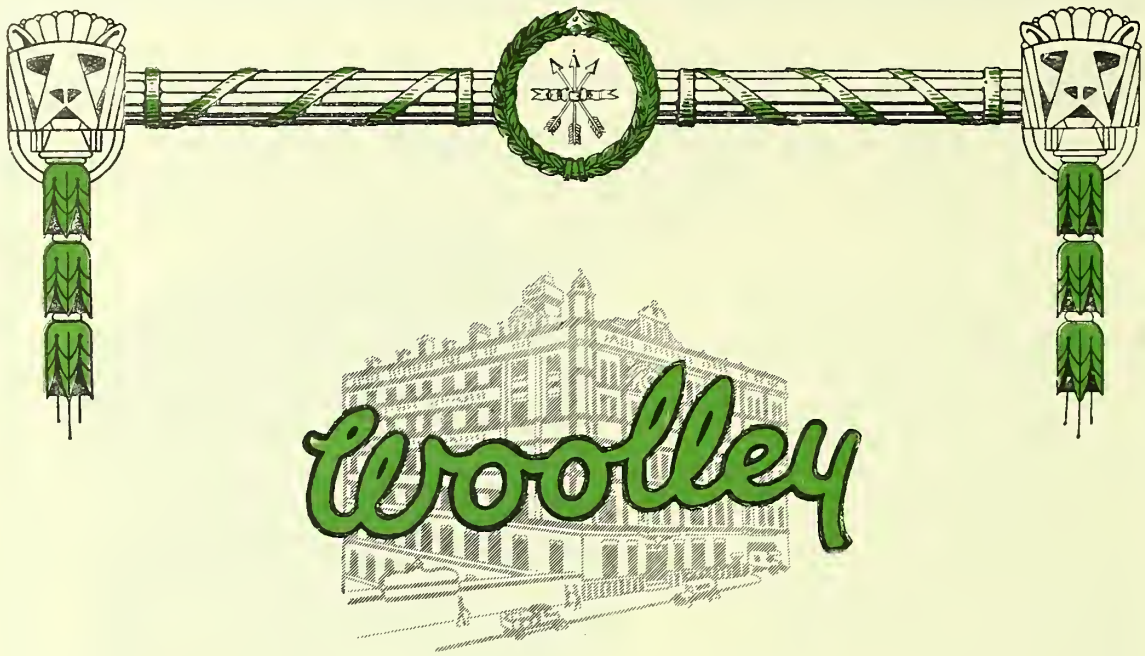


No. 52.

(Actual Size of Case 7⅛″ × 3⅝″)
THE POPULAR "BIG THREE"
AN ESTABLISHED FAVOURITE
RETAIL Each 3/- ... PRICE Each 2/-

EXPORT.—All export orders will be executed at special bond prices. Address enquiries to our sole Export Agents : AYRTON, SAUNDERS & Co., Ltd., Hanover St., LIVERPOOL.

SAVILLE PERFUMERY LIMITED. WATFORD, HERTS



THE HOUSE *of* WOOLLEY

supplies all the needs of the Trade

GALENICALS, DRUGS, SUNDRIES
SURGICAL & HOSPITAL REQUISITES
PROPRIETARY ARTICLES
PHOTOGRAPHIC GOODS

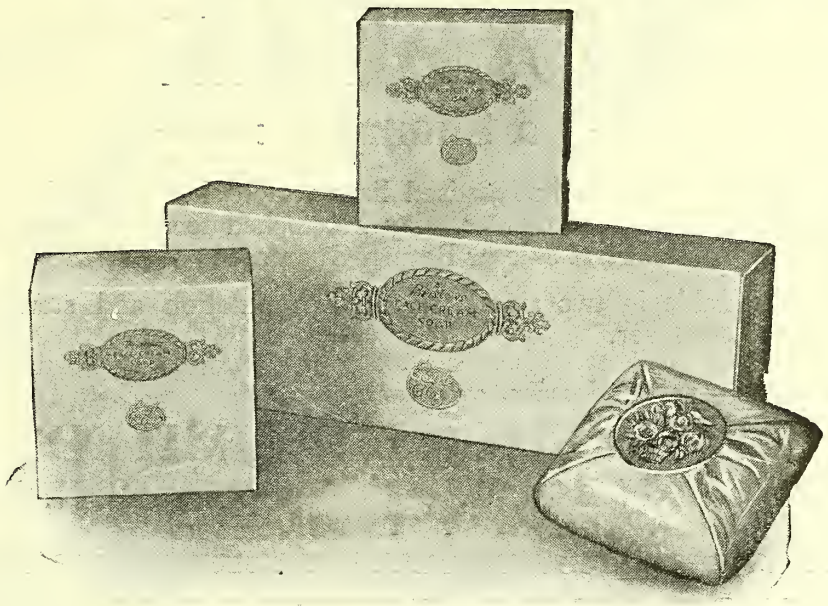
and makes a speciality of

QUALITY and SERVICE

Enquiries for all Pharmaceutical requirements are invited

JAMES WOOLLEY
SONS & Co., Ltd.
VICTORIA BRIDGE
MANCHESTER

Be among the first to sell this new Beauty Preparation



What it is

Bristow's Face Cream Soap is a skilful combination of finest grade Toilet Soap with highly concentrated milk and olive oil of the finest quality and purity. Cleansing, emollient, soothing and nourishing, it forms the perfect substitute for night cream. Perfumed with Eau de Cologne, it is wonderfully refreshing. It retails at ***9d.*** *per tablet (cartons of three 2/-) and carries profitable discounts and extra liberal introductory bonus terms.*

BRISTOW'S
FACE CREAM SOAP

The gratifying reception accorded to this entirely new Preparation by our many Trade friends at the Chemists' Exhibition has fulfilled our most sanguine expectations.

Bristow's Face Cream Soap is proving a sure winner.

Pharmacists from all over the country are placing orders and taking advantage of our exceptional Window Display Terms.

Don't miss this splendid opportunity of putting something really good and different in the way of your customers. Write now for full particulars.

T. F. BRISTOW & Co. LTD.
Colindale, Hendon N.W.9.

Telephone: Colindale 6474.

C C

MERCOLIZED WAX

— : for the Complexion : —

and

STALLAX

— : a Shampoo : —

TWO substantial and well-advertised lines which show a handsome profit to the Retailer, and, moreover, may be stocked fearlessly owing to the Manufacturers' most liberal Sale or Return Guarantee.

Both are obtainable in two sizes, and their reputation and sterling value assure a steady turnover.

Order through your Wholesaler, or direct from:

DEARBORN (1923) LIMITED

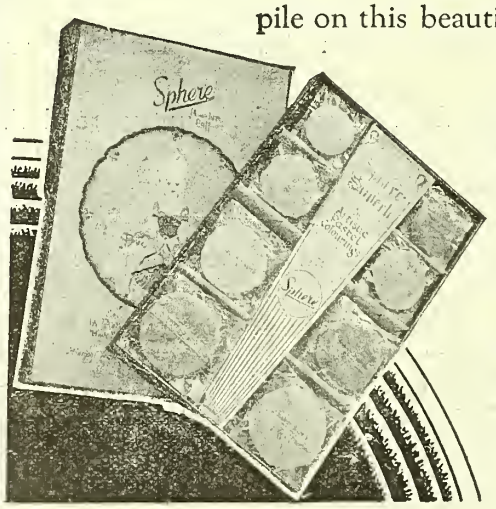
37 GRAY'S INN ROAD, LONDON, W.C.1.

Telephone - - - HOLBORN 9669

SPHERE

SUPERB POWDER PUFF

A new Puff made of Sylkie-down Velour. The pile on this beautiful puff is produced in such a way as to retain just sufficient powder to enable the user to apply it smoothly and evenly, without streaks, as is the case with coarser materials.



Supplied in assorted colours and sizes.

ATTRACTIVE DISPLAY BOX.

No. PF 50 as illustrated, 2 doz. in a box ... **7/6** per box.

Assorted Six Puffs each 2", 2½". 2¾". and 3¼" to the box.

Wholesale only:
FAIRE BROS. & Co., Ltd, Leicester.

BOURJOIS'

LONDON & PARIS

SUPER-QUALITY

"365 DAY"

SHAVING STICK





The combination of quantity with Bourjois' quality has made this important new line an immediate and amazing success. Such exceptional value will create a lasting demand.

ORDER NOW!

HOW TO ORDER.

Catalogue No. 2776.

66/- per gross (min. quantity 3 dozen.)

60/- „ (for quantities of 5 grs & upwards)

This Counter Display Outer with every 3 dozen.

A. BOURJOIS ET CIE, LTD., 4, WATER LANE, BLACKFRIARS, E.C.4.

PARIS · NEW YORK SYDNEY WELLINGTON

GENATOSAN

£5

DISPLAY PARCEL

The New Genatosan products, Genozo Brand Toothpaste and Mouth-Wash Tablets may be included in £5 mixed orders of Genatosan preparations.

Mixed Orders of not less than £5, cash with order, are subject to 10% discount off list prices conditional on exhibition of showcards.

GENATOSAN LIMITED, LOUGHBOROUGH

L.P.G. 12A.

What did your wife think of the tablet of H.B.T. we sent you last month?

The Soap with the coming world demand!

If you were amongst the number of Chemists who took advantage of our Special Offer of a free tablet of H.B.T. Toilet Soap and Shaving Stick you will want more of it for home use. You'll not go back to ordinary toilet soap after using H.B.T.

And we are confident you will want to recommend it to your customers for it is a pleasure to recommend to others what you appreciate yourself.

H.B.T. Aseptic Toilet Soap

9d. per tablet Box of three tablets 2/3

H.B.T. Aseptic Shaving Soap

1/- per Stick

These Soaps can be obtained through any Wholesale House or direct from—

HUNTER BEATTIE, Monteith Row, Glasgow, S.E.

Note the British Commercial Monomark on each Tablet—B.C.M./H.B.T.

Sole Agents for Northern Ireland:—SHAW & JAMISON, LTD., BELFAST

Stocks of H.B.T. Aseptic Soaps are held in London by:

SANGERS, 42a Hampstead Road, N.W.1
FRANCIS NEWBERY & SONS, LTD., Charterhouse Square, E.C.1
MAY, ROBERTS & CO., 7-13 Clerkenwell Road, E.C.1
BUTLER & CRISPE, 81-82 Clerkenwell Road, E.C.1

We specialise in highest quality

TOILET SOAPS

at non-prohibitive prices, for all requirements

TWO SPECIAL OFFERS

Chemist's Own Name - - - **33/6** *gross*

4 oz. Round Bath - - - - **30/-** *gross*

ASK FOR COMPLETE LIST OF ALL LINES

Phone : Mitcham 4035

R. F. WHITE & CO. *The Non-Combine Soap House*

GROVE MILLS, LONDON ROAD, MITCHAM

Over 10,000,000

women are reading this week about

BUTYWAVE SHAMPOO

How are your stocks?

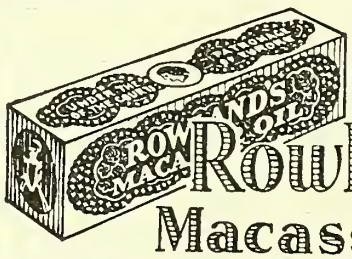
½-Gross lot cost 21/7

Profit 17/5

Butywave Co., 10 Tachbrook St., S.W.1

Thinning hair

is often due to lack of natural oil which shou'd be supplied from the roots. The best method of supplying the def ciency is by means of Rowland's Macassar Oil—the steady favourite of 136 years. It supplies the oil, stimulates the growth and nourishes the hair.
In two colours, red for dark hair and golden for fair or grey hair.



Of all wholesalers. Retail 3/6, 7/- & 10/6 P.A.T.A.

Rowland's Macassar Oil

A. ROWLAND & SONS, LTD., 112 Guilford St., London, W.C.1

JH&CO BM2A

Show it — *and you will sell it —*

THREE things give Euthymol Tooth Paste its unique position amongst dentifrices.

¶ The first is *Merit.* Consistently well made from the best ingredients for over 30 years it has secured the complete confidence of the public in its excellence.

¶ The second is *Recommendation:* Merit has brought the recommendation of user and of dentist. The recommendation of the chemist has been all-important, too.

¶ The third is *Advertising.* During the last quarter of century we have never failed to keep the dental profession reminded of the merits of Euthymol Tooth Paste, and we have also taken adequate steps to keep this dentifrice well before the public.



Our advertising is increasing. For these reasons the mere showing of Euthymol Tooth Paste in the window or on the counter is usually sufficient to bring sales. Keep Euthymol to the front. It is a profitable line, particularly when bought on special terms. Details of these will be sent on application to Parke, Davis & Co., 50 Beak Street, London, W.1.

Euthymol
TOOTH PASTE

TRY THESE QUICK SELLING LINES FOR THE HOT SUMMER MONTHS

Superfine Johann Maria Farina Eau de Cologne and Old English Lavender Water prepared from Duty-free Spirit.



	4 oz. Square.	2 oz. Square.	2 oz. Cellophaned.	2 oz. Watch Shape.	1 oz. Watch Shape.
Eau de Cologne	16/- Doz.	9/6 Doz.	8/9 Doz.	9/- Doz.	5/6 Doz.
Lavender Water	16/- Doz.	9/6 Doz.	8/9 Doz.	9/- Doz.	5/6 Doz.

ORDERS TO THE VALUE OF £2 AND OVER CARRIAGE PAID.

BRIDGEN & GRIFFIN, 25 Bartlett's Buildings, Holborn Circus, London, E.C.4

Order through your usual wholesaler, or from
J. C. GAMBLES & CO. LTD.
211 BLACKFRIARS ROAD,
LONDON, E.C.1

Nuctone

FOR GREY HAIR —

NUCTONE ECLAIRE, ECLAIRE CONCENTRE
NUCTONE AND NUCTONE CONCENTRE

Manufactured by
STEWART, GOODALL & DUNLOP, LIMITED,
4 DERING STREET,
LONDON, W.1

PASTA MACK



A Delightful Necessity.
For BATH & TOILET
Refreshes and Perfumes the Skin.
PASTA MACK 3/6 size 28/- per doz. Boxes (Each containing 8 Large Tablets).
2/- size 16/- per doz. Boxes (Each containing 8 Small Tablets).
Agents: WM. EDWARDS & SONS, 14-18 Nile Street, City Road, London, N.1.
'Phone Clerkenwell 5230, 5231, 5232.
Makers: H. Mack Succrs. ; Ulm O/D.



GREY HAIRS ← *appear just here.*
TOUCH THEM UP WITH
TATCHO-TONE
and they will instantly recover their natural shade. Medical Guaranty with each bottle. Chemists' Prices 2/6 and 4/6

Trial Phial 8D *Post Free*

TATCHO-TONE CO., 5 Great Queen Street, London, W.C.2

Sunshine Remedies

INCLUDING THE NOW FAMOUS

ANTI-ACID TABLETS, "TOXINICON" for Rheumatic diseases
GOLDEN-RAY SHAVING SOAP The only Soap with antiseptic Vaseline centre
SOLEIL D'OR PERFUME & TOILET PREPARATIONS

London Chemists are invited to send their "Sun Ray" patients to our private rooms. Trained Staff in attendance
ASK FOR DETAILS.

Write for Descriptive Catalogue,
Sunshine Remedies, Ltd.
8 West Halkin Street, S.W.1
Telephone: Sloan 4133.



Read Palmolive ads yourself

See why women want this greatest selling complexion soap

Then display Palmolive—for greater sales and profits

SUPPOSE you were a woman. You'd read everything that had to do with beauty care. You'd buy those articles that "sold" themselves to you. That is what women by the million do to-day. That is why Palmolive is the greatest selling complexion soap in the world.

Read our advertisements yourself. See why women want to buy Palmolive for beauty rather than all-purpose soaps. Rather than inferior soaps.

The 1929 Palmolive advertising campaign is based on the greatest endorsement by beauty specialists ever assembled.

By the hundred the great names of beauty specialists are featured. Women, to whom these great names are gospel, buy the soap they recommend.

Not only the great foreign specialists—not only the experts of the world's leading cities—but the beauty shops in your own town are featured. The beauty salons to which "Mrs. Jones" and "Mrs. Smith" go.

And there, finding Palmolive recommended to them—they come to you to buy.

This is the greatest advertising idea in a decade. Get your share of the business it is building. Feature Palmolive Soap for greatest turnover and profits. If you need display material, window bills, etc., write to the Advertising Department, Colgate-Palmolive-Peet Ltd., 21, Eagle Street, London, W.C.1.

COLGATE-PALMOLIVE-PEET LTD.

SEE THAT YOU GET
MYSORE GOVERNMENT
SANDALWOOD OIL
DISTILLED FROM SANTALUM ALBUM, LINN.

THIS IS YOUR GOVERNMENT OF MYSORE *GUARANTEE*

Send all enquiries to :

Telegrams : "Ekdum," London.

K. B. MAVLANKAR
98 Great Tower St., E.C.3

Telephone : Royal 4987

Established 1795.

LAUTIER FILS

Works : GRASSE (France) & BEYRUT (Syria).

Essential Oils and Synthetics.
All Raw Materials for Perfumery.

Olive, Peach Kernel, Sweet Almond Oils
Floral Waters.

Sole Agents for :—

PAOLO VILARDI *Messina Oils :*
Lemon, Bergamote, Sweet Orange, etc.

S.A. FLORFE *Spanish Oils :*
Spike Lavender, Rosemary, Thyme, Pennyroyal, etc.

C. M'NTCHEFF & KETCHEDJIEFF
Otto of Rose. Bulgarian.

Wholesale and Export only.

LAUTIER FILS, Ltd., 4 Denman St., London Bldg., S.E.1
Tel. Add: "Lautiert, Phone. London." Telephone: Waterloo 1601/2

NEROLI & ORANGE FLOWER PRODUCTS

Our complete range of Artificials will allow a cheap replacement in many formulas, which will become necessary owing to the advance in price of the naturals, due to the severe weather having had disastrous effects on the trees.

NEROLI SUPREME
NEROLI. K.
NEROLI. R.
NEROLI SUPERIOR
NEROLI EXTRA
NEROLI. S.

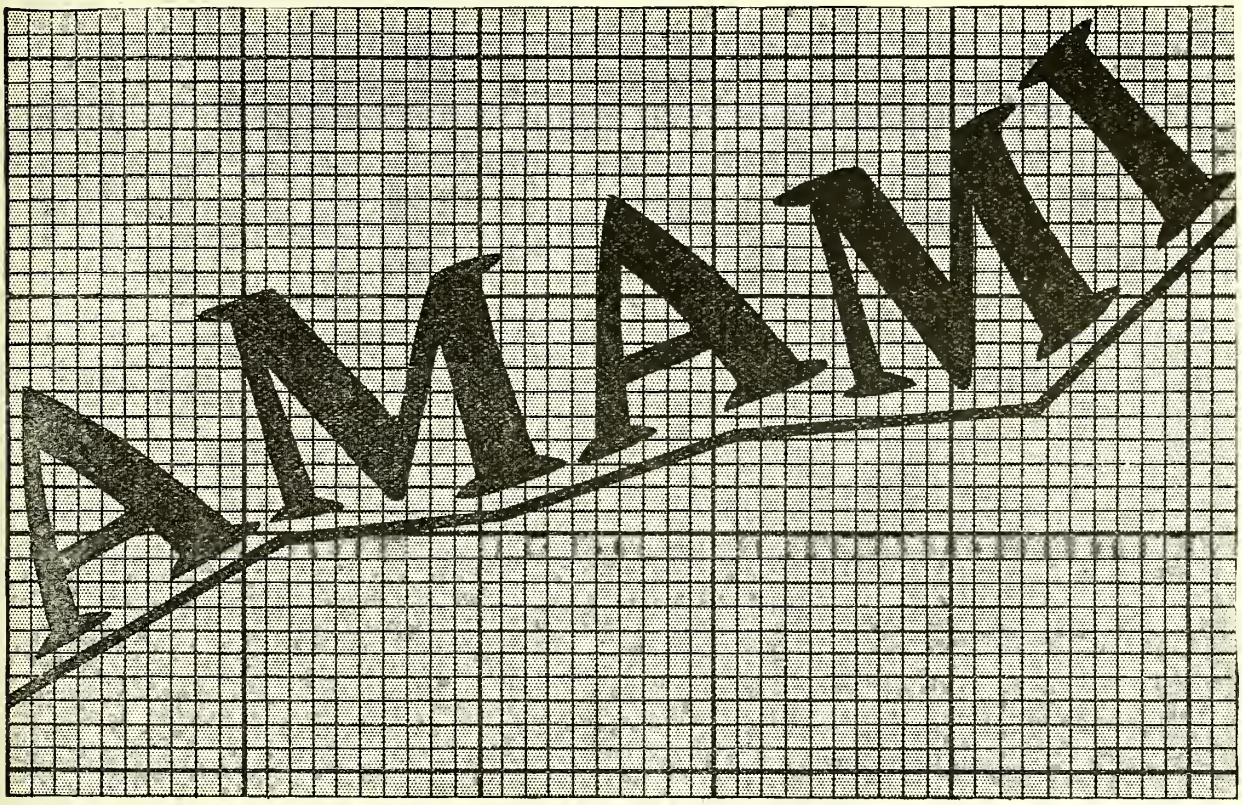
ORANGE BLOSSOMS 1244
ORANGE BLOSSOMS 1247

AURANOL FLORA (Orange blossoms novelty)

FLEURANGEOL E 1396 } New bases for
FLEURANGEOL S 1397 } Orange Blossoms.

A range of Samples and Prices on application.

CHAS. ZIMMERMANN & CO. (Chemicals), LTD.
St. Mary-at-Hill, London, E.C.3.



AMAMI SALES ARE GOING *UP*

And up . . . and up! All over the country chemists and druggists are benefiting by the huge success of the widely advertised AMAMI Gift Scheme. Repeat orders are pouring in every day. Are *you* feeling the boom? If not, get busy. Easy profits are waiting to be picked up. The best AMAMI Sales season is already at your door. Look to your stocks NOW and display the attractive Show material in your window.

AMAMI

PRICHARD & CONSTANCE (Manufacturing) LTD., 11, BROAD STREET, LONDON, W.C.2.



Always In Full "Sale"!

EDWARDS' HARLENE TOILET PREPARATIONS

There is never a lull in the "Trade Wind" that keeps these World-Famous Toilet Preparations in full "Sale." The Excellence of the Products themselves, coupled with the Extensive and Continuous Advertising Campaign, keeps the "Trade Wind" always at full strength.

Thousands of new customers are introduced *every* week!

No Chemist or Store can afford to be without these World's Record Sellers!

DO YOU STOCK THE FOLLOWING "QUICK SELLERS"?

"HARLENE" for the Hair
"CREMEX" Shampoo Powders
"UZON" Brilliantine
"ASTOL" for Grey Hair
"JUNOFLORIS" SPRING BREATH TABLETS
"JUNOFLORIS" Dentifrice
"ASTINE" Vanishing Cream
"ASTINE" Tooth Cream
"ASTINE" Shaving Stick
"ASTINE" Nail Cream
"HARLENE" Hair Fixative (For Gentlemen)
"HARLENE" Wave Setting Lotion



For Full Particulars, Terms, etc., write to:—

EDWARDS' HARLENE LTD.

20, 22, 24 & 26 LAMB'S CONDUIT STREET, LONDON, W.C.1

The demand is increasing, — the profit a big one



Rendell's

SOLUBLE QUININE PESSARIES

Retail Price 2/6 per Box P.A.T.A.

Your Wholesaler Can Supply P.T.O.

A Line it will pay you to push



Doctors Recommend Them

In all parts of the world, medical men endorse Rendell's Pessaries as perfectly efficacious for their purpose and harmless to health. They are supreme for safety and satisfaction.

Chemists Profit by Them

Not only are Rendell's easy and profitable to sell, but Customers for them are regular customers, often purchasing at the same time their other pharmaceutical requirements.

The Public Trusts Them

The public that asks for Rendell's will not accept substitutes. Either they know from experience that Rendell's are unrivalled for reliability, or they have been warned on no account to accept anything else.

Rendell's Pessaries

Order through your usual wholesaler. We are always pleased to give details of selling plans whereby chemists have achieved very considerable success with this line. Do not hesitate to write for these interesting particulars.

W. J. Rendell, Ltd. 15, Chadwell Street, London E.C.1

A. S. LLOYD'S

EUX-E-SIS

For Shaving without Soap, Water or Brush

CAUTION to the TRADE

Labels on the genuine EUXESIS not only bear signature of A. S. Lloyd in Black Ink, but also "Prepared only by his Widow and signature of 'Aimée Lloyd'" in RED.



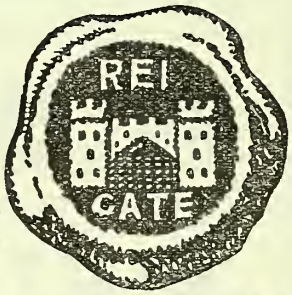
SOLE MANUFACTURERS & PROPRIETORS:

AIMÉE LLOYD & CO. LTD.

23 PANTON STREET
HAYMARKET, LONDON, S.W.1

N.B.—When ordering from Wholesale Houses write LLOYD'S EUXESIS (WIDOW'S).

OIL of LEMON
SOLUBLE OIL of LEMON
TERPENELESS OIL of LEMON
SESQUITERPENELESS OIL of LEMON



The pen may be mightier than the sword, but it is a poor weapon with which to prove the quality of these products. A much weightier argument is a trial order and an actual test.

Telephone : Reigate 480
Telegrams : Esswhite, Reigate.

White, Tomkins & Courage Ltd.
REIGATE, Surrey.

ESSENCES & SYNTHETICS LTD.

WILLIAM C. SLATER, Managing Director.

4 CARLISLE AVENUE, FENCHURCH STREET, LONDON, E.C.3

Royal 0290. *Essynthet—Ald—London*

A few of our latest Creations :—

AMBREINE A sweet Oriental perfume with a delightfully delicate floral nuance.

LILY-OF-THE-VALLEY True to Nature; even in its last traces on evaporation.

VICTORIA VIOLET A very successful composition; a necessity to the creative perfumer.

PARMA VIOLET A standard Violet; indispensable in the absence of the natural flower oil.

WALLFLOWER A beautiful reproduction of the Old English Wallflower.

ROSE An excellent substitute for Bulgarian Otto.

JASMIN A composition giving the pungency as well as the ever-popular floralcy of Jasmin flowers.

¶ **Of the highest possible concentration, and hence very economical in use; perfectly soluble; do not discolour. Suitable for handkerchiefs, perfumes, face powders, vanishing creams, brilliantines, toilet waters, bath salts, soaps. Samples cheerfully sent by return of post.**

Perfumers

When substituting Terpeneless or Sesqui-Terpeneless Oils in place of natural Oils make positively sure of the degree of CONCENTRATION. Price is not a criterion. We manufacture nothing but the finest qualities with highest standard of purity.

HOLLANDS STANDARD TERPENELESS

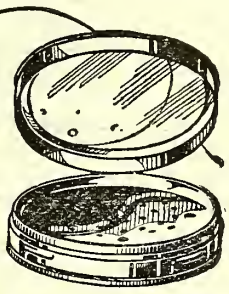
Use the finest Terpeneless and make sure by buying from

Hollands Distillery Ltd.

TERPENELESS OIL SPECIALISTS

4 Queen St. Place, London, E.C.4

AND AT MITCHAM, SURREY



Dhaussy PATENT AIRTIGHT AND UNSPILLABLE • POWDER BOX

The only practical Sifter made in a variety of beautiful Enamel designs

BRITISH MADE, OWNED & PATENTED

Obtainable from all Wholesalers.
On the P.A.T.A. List.

DHAUSSY POWDER BOX CO., Ltd.
11, BARTLETTS' BUILDINGS, HOLBORN, E.C.4.
Phone: City 9138.

ALFRED FRANKS & COMPANY

Before placing orders elsewhere let us quote you for

GILLETTE, VALET, EVER-READY

and every type of

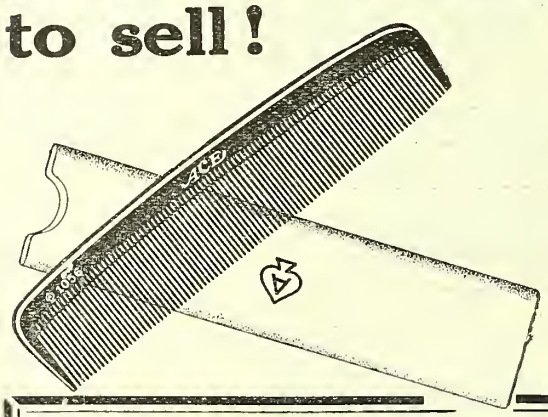
SAFETY RAZOR AND BLADES

also all

PROPRIETARY PERFUMERY

ALFRED FRANKS & COMPANY
11 Bartlett's Buildings, Holborn, E.C.4

CHEMISTS!
Here's a Comb you'll be proud to sell!



THE day of the cheap, gaudy comb is passing fast! Inevitably the Public is coming to choose their combs with greater care and with more concern for hygiene. Take advantage of this trend in public opinion—stock ACE Combs.

When you examine one, you will be proud to sell ACE Combs. You will know that each one you sell will enhance your reputation. For ACE Combs are meticulously, proudly made. Note how evenly the teeth are spaced—how each one is carefully rounded. Feel how strong the comb is—yet how flexible!

ACE Combs sell on sight. With your first order we supply an ingenious showcase free. The range of seven combs is displayed on the front and the stock of seven dozen in drawers behind. These come to you at 6½d. each, and 45/6 the lot, less 5% discount for cash. Order your case to-day.

ACE COMBS TRADE MARK

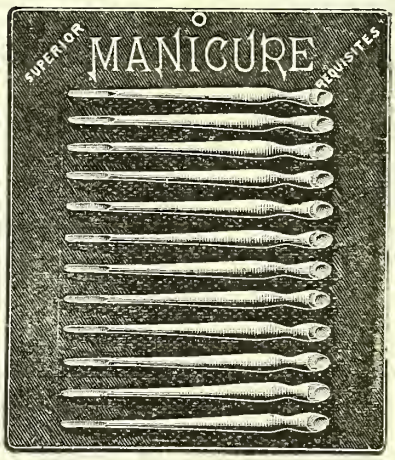
Hygienic—Durable—Guaranteed

From your usual wholesaler.

American Hard Rubber Co., Ltd., 13a Fore Street, E.C.

CA 9351

Manicure Goods



Rubber-ended HOOF STICKS

carded or in bulk.

Wood or Ivory.

Export requirements specially catered for.

WHOLESALE & EXPORT ONLY SUPPLIED.

Don't Buy Abroad, We can meet all your requirements at competitive prices.

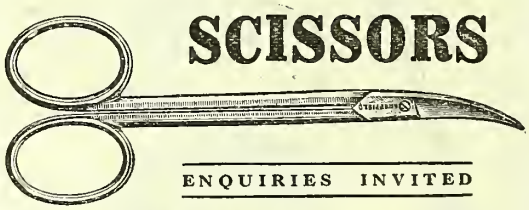
SEND YOUR REQUIREMENTS TO THE ENGLISH MAKERS.

Robert Lee

'Phone: Mountview 7811.

14, Calverley Grove, Upper Holloway, London, N.19

SCISSORS



ENQUIRIES INVITED

GILL, HERBERT & CO., Ltd.

CUTLERY MANUFACTURERS,

Wheeldon Street, SHEFFIELD



A KEEN BLADE AT A KEEN PRICE

The Blade that SELLS as it SHAVES—"LIKE GREASED LIGHTNING!"

Obtainable from all Leading Wholesalers.

Dept. C.D. "Wanie" Distributors:
c/o ROEBUCK'S ADVERTISING SERVICE
Salisbury Square House, Salisbury Sq., Fleet St., London, E.C.4

If you really want Quality in Tooth Brushes

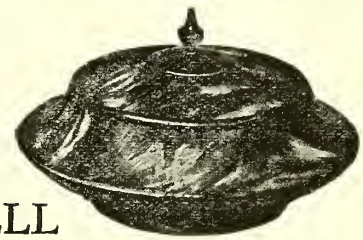
and are more concerned with the Value of the Products than the fancy display, see that you stock

TILBURY'S "FORT" BRAND

TILBURY'S "PROPHYLACTIC" IN THE ORANGE BOX, **16/-** doz.
"CLEANSA" TOOTH BRUSH, **15/-** doz.
"SMOKERS' SPECIAL" TOOTH BRUSH, **15/-** doz.
DENTAL PLATE BRUSHES from **10/-** doz.
Your Name branded on Brush and Box if desired.

W. R. TILBURY & SON
47 FRAMPTON PARK RD., HACKNEY, LONDON, ENG.
Estab. 1880.



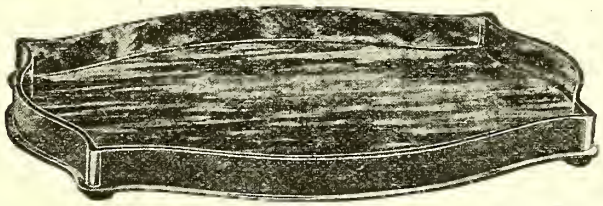


XYLO. TORTOISESHELL
TOILET REQUISITES
OF EVERY DESCRIPTION
SEND FOR CATALOGUE TO



ADOLPH SCOTT
LIMITED
23 to 26 GREAT HAMPTON ST. BIRMINGHAM
Telegrams: "ADOLPH" B'HAM. Telephone: NORTHERN 2102






An easy line that makes 33⅓% Profit for you



SOUPLEX—THE BEST BRITISH RAZOR BLADE

One third of the Souplex Retail Price goes to the retailer. Why shouldn't you get your share? Souplex Blades grow more and more popular. Men who buy Souplex come back over and over again with repeat orders. The excellence of a Souplex shave brings your customers to you.

But you must do two simple things. Put a Souplex Showcard in your window. Display Souplex prominently on your counter. Then you'll sell Souplex and win the 33⅓% profit that comes on every Souplex sale.



WHOLESALE PRICE
20/- per box of 120

RETAIL PRICE
5 for 1/3
10 for 2/6

SOUPLEX, LTD. SOUPLEX MORECAMBE, LANCS.

FLEET
18 87
SHEFFIELD'S BEST IS THE WORLD'S BEST

Sheer Merit is selling This Blade.

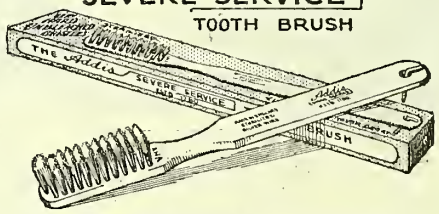
FLEET is the lowest-priced of the Quality Blades made in Sheffield. **Retails at 3 for 7½d.**
FLEET offers you HANDSOME PROFIT.
FLEET keenness and long life get repeat Sales.

Liberal Bonus for Window Displays.

Terms and Sample from :—
DOMINION STEEL CORPORATION, Ltd.
Fleet Works, Queen's Road, SHEFFIELD.

PRICE 2/6

Addis
SEVERE SERVICE
TOOTH BRUSH



ADDIS BRUSH WORKS
Hertford, England.
ESTABLISHED 1780

HAVE YOU HAD YOUR FREE SAMPLE?

ENTERPRISING CHEMISTS ARE MAKING LARGE PROFITS



Selling **AMO** SHEFFIELD STEEL **RAZOR BLADES**

Retail 1/6 doz. Write for FREE SAMPLE & SHOW-CARD, or ORDER AT ONCE, 8/- gross, post paid.

From the AUTHORISED SOLE DISTRIBUTOR,
L. FRANKENBERG, 125 Houndsditch, London, E.C.
Telephone—Avenue 8840. Telegrams—Uzecarnos, Ald, London

Rooney's TOILET BRUSHES

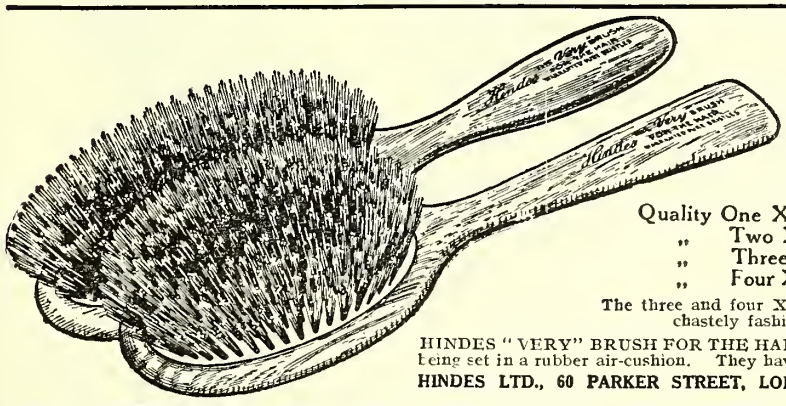


are essentially
QUALITY products
and are known and sold all over the World.

ALWAYS GOOD VALUE

R. A. Rooney & Sons
(Established over 100 years)
HIGHAM HILL ROAD,
WALTHAMSTOW, E.17

ARE YOU STOCKING THEM?



HINDES "VERY" HAIR BRUSH

Quality One X	Sold at 7/6d. each.	}	TRADE PRICE 33⅓%
,, Two XX	,, 10/6d. ,,		
,, Three XXX	,, 15/- ,,		
,, Four XXXX	,, 18/6d. ,,		

The three and four XXXX grade is made in Ebony or Rosewood, chastely fashioned in both oval and circular bodies.

HINDES "VERY" BRUSH FOR THE HAIR is guaranteed pure bristles, the multiple tufts being set in a rubber air-cushion. They have been known to the trade for nearly 40 years.

HINDES LTD., 60 PARKER STREET, LONDON, W.C.2. :: *Works:* BIRMINGHAM.

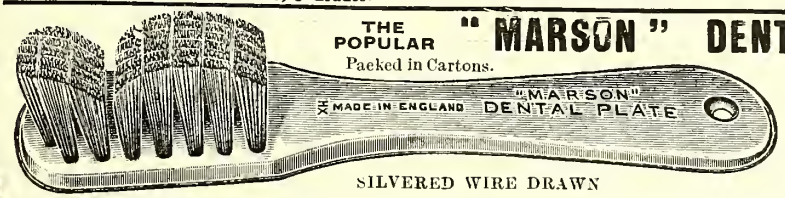
MARSHALL'S PROPHYLACTIC TOOTH BRUSH
SILVERED WIRE DRAWN.



IN CARTONS

Samples and Prices submitted on application.

MADE IN 3 SIZES IN SELECTED WHITE AND UNBLEACHED BRISTLES, 3 Grades. BEST ENGLISH MAKE.



THE POPULAR "MARSON" DENTAL PLATE BRUSH
Packed in Cartons.
IN STIFF UNBLEACHED BRISTLE
SILVERED WIRE DRAWN

C. F. MARSHALL & Son
Devonshire Works, Devonshire Rd.,
HACKNEY - LONDON, E.9

"ODENTIC TWO-WAY"



Maximum Resistance both directions.
Two Sizes: Gent's (4 rows), Ladies' (3 rows)
SMALL SHOWCARD WITH EVERY HALF DOZEN.

"ODENTIC" PLATE BRUSH

(Reg. No. 417637).

PACKED IN COUNTER DISPLAY BOXES.

From all Wholesalers.

Enquiries Invited.

W. R. Speer & Son, 215 Dalston Lane, E.8

ESTAB. 100 YEARS.

G. B. KENT & SONS, LTD.

Are known the World over as the Largest Manufacturers of

BEST BRITISH BRUSHES

Please write for full Particulars to—

75 FARRINGDON ROAD, E.C.1.

HAIR CLIPPERS

BURMAN

The British-Made Hair Clipper.



For SURGICAL and VETERINARY PURPOSES.

Dainty Shingling Clippers for Ladies' use.

HAIRDRESSERS' CLIPPERS

BURMAN & Sons, Ltd., BIRMINGHAM

Telephone: Axminster 5. *Telegrams: "Coate, Axminster."*

COATE & CO. (Axminster) Ltd.

The London Brush Works, Axminster, Devon.

Estab. 1847.

Manufacturers of Super British Brushes

Our Special "PROPHYLACTIC" Tooth Brushes—

3 row Hard, Medium, Soft, Yellow Hair @ ... ... 16/- per dozen
4 " " " " " " ... ... 18/- " "

Orders for one gross supplied in Cartons with customer's name and address free.
Every Brush Guaranteed. British made by British Labour. Send for our present list of prices

80% PROFIT FOR 2 MONTHS ONLY

THE "NEW EDGE" BLADE



The Great Wardonia "NEW EDGE" DRIVE

June 25th to August 25th

See to your stocks. Put your trust in the Sheffield-made Blade His Majesty's Government has just ordered! The "New Edge" has won the day. The "New Edge" Drive backs you up with a big national advertising campaign and fine window display FREE. Send your order NOW and get

YOUR 80% PROFIT

£5 ORDER SELLS FOR £9

£3 ORDER SELLS FOR £5/5/

Have you received your copy of the "TRADE FOLDER" which details Two Special Profit Offers,

Press advertising, and free Window displays?

If not, send postcard

AT ONCE

It's worth while!



Sole Makers: THOMAS WARD & SONS, LIMITED
WARDONIA WORKS, SHEFFIELD, ENG.





THE BRUSH YOU CAN SELL IS THE BRUSH YOU GET ASKED FOR!

There is always a constant and regular demand for the "MASON PEARSON" Hair Brush, because it always gives satisfaction, and one satisfied customer recommends it to many friends!

The "MASON PEARSON" is not only the original pneumatic Hair Brush, but—*it is still the best*—and is the largest-selling Hair-Brush to-day!

The range of models and colours enables you to recommend the "MASON PEARSON" for every hair brushing need, and for every individual taste.

SELLING PRICES:

"Pocket"	*3/6*
"Shingle"	*4/9*

—two small dainty brushes for occasional use during the day. Other full size brushes for Home use are:

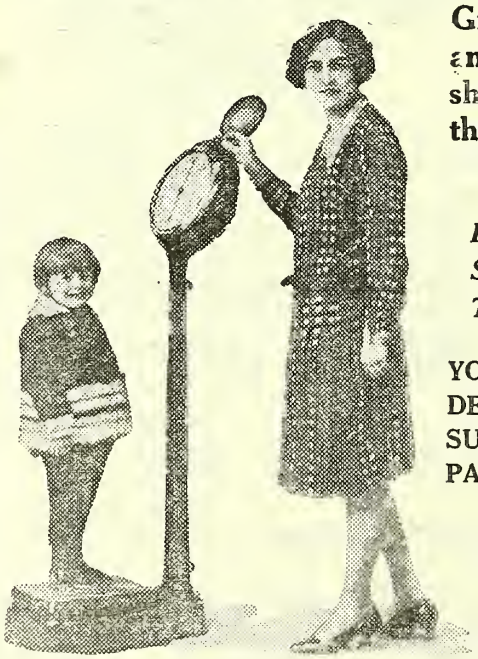
"Universal"	*5/9*
"Junior"	*7/6*
"Popular"	*10/6*
"Small Standard"	*12/6*
"Standard"	*15/0*
"Extra"	*18/6*

All subject to generous discounts. Supplies can be obtained from your usual Wholesaler.

MASON PEARSON HAIR-BRUSH

MASON PEARSON SELLING AGENCY, LTD., 59 *NEW OXFORD ST., LONDON, W.C.1*

The Autoway Barometer of Health



Gives as good a return and in most cases shows a larger profit than any line sold in a pharmacy.

PENNIES IN THE SLOT PAY FOR THE "AUTOWAY."

YOU PAY A SMALL DEPOSIT AND THE SUBSEQUENT TAKINGS PAY THE MONTHLY INSTALMENTS.

BABIES ARE GOOD CUSTOMERS.
PLEASE MOTHERS BY WEIGHING THEIR BABIES.



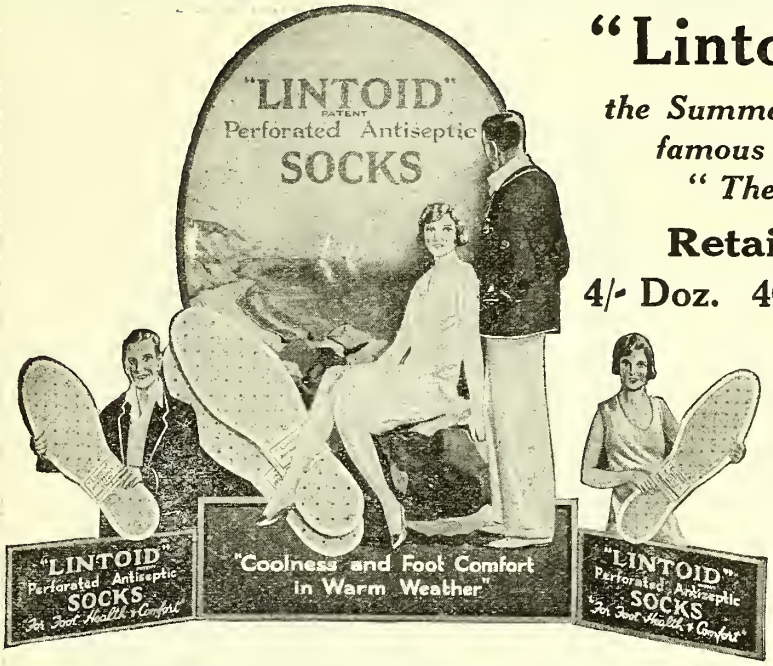
This Handsome Infant Weigher is PRESENTED GRATIS to every Chemist who buys an "Autoway."

SEND for ILLUSTRATIONS and PARTICULARS

AGENTS EVERYWHERE

AUTOWAY CO. 13 Wellington St., Glasgow

SUMMER LINES FOR YOU



"Lintoid" Socks

the Summer equivalent of the famous Winter selling "Thermoid" Socks

Retail 6d. pair

4/- Doz. 46/- Gross & Bonus.

This line shows you a minimum profit of 50% on cost. If you buy gross pairs and over, which secures a bonus, you make 70% on cost.

SEND FOR 1 GROSS AND MAKE A COMPLETE WINDOW SHOW. THIS SHOWCARD SUPPLIED.

Carnation Corn Caps

COST **5d.** RETAIL **9d.** P.A.T.A.

Bonus 1 dozen with 1 gross orders.

Special Showcards are provided which make an artistic and sales creating window display.

THEY ARE WORTH TRYING

Make a display at first opportunity.





"Sanoid" ROSE CARBOLIC TOOTH POWDER

Introduced to retail at 6d. or 7½d. at chemists' will.

1 doz. lots 3/- doz.
6 doz. at 2/9
12 doz. at 2/6

"REGULOL" REGD.

Highly palatable Emulsion of Liq. Par. with Agar-Agar, possessing all the advantages of the former without its objectionable qualities, and forming probably the best possible remedy for Chronic Constipation in Children and Adults.

In two forms, "Plain" or "Compound" (with Phenolphthalein 4 grains per oz.)

Nominal 1 lb. amber coloured jars, 16/- doz.
RETAIL 2/6 EACH

DROP A POSTCARD FOR ANY DETAILS

Cuxson, Gerrard & Co., Ltd.

Established over Half a Century

OLDBURY, near BIRMINGHAM

HOVENDEN'S

PINE TAR WET SHAMPOO

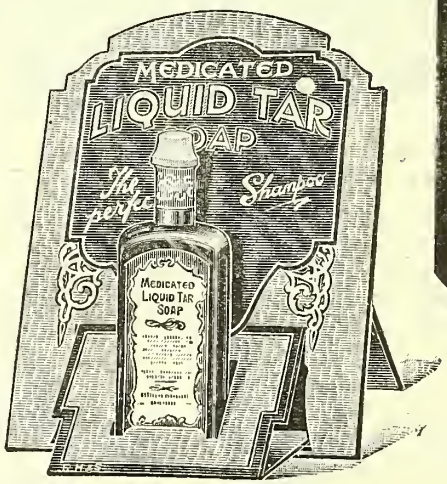
(MEDICATED)

The only one of its kind on the market

Absolutely no Sediment

No. 4755 10/6 doz.

Name and address free for 6 doz. orders





No. 4755.

Display showcard supplied free

R. HOVENDEN & SONS, LTD.

LONDON : 29-33 Berners Street, W.1 and 89-95 City Road, E.C.1

Telephone : Museum 2810 (4 lines) 7553 (3 lines) *Telephone :* Clerkenwell 7601 (3 lines)

TOILET PREPARATIONS

UNEQUALLED FOR VALUE IN BRILLIANTINES,
DRY SHAMPOOS, LOTIONS, FACE CREAMS, ETC.

JULES FRÉRES

LIME CREAM AND GLYCERINE

THE BEST LINE EVER OFFERED TO THE TRADE

CAMEO SERIES



EQUALLY SATISFACTORY
IN THE HOTTEST OR
COLDEST CLIMATE

PRICES:

3 oz. Bottles	- -	**3/9** per doz.
4 oz. „	- -	**4/3** „
6 oz. „	- -	**5/6** „
8 oz. „	- -	**6/6** „

SEND FOR
ILLUSTRATED CATALOGUE

ECINOS SERIES



JULES FRÉRES LTD.

(*Sole Agents:* P. H. GALLOWAY, LTD.)

WALWORTH ROAD, LONDON, S.E.17

Morny

Fine Perfumes



"JUNE ROSES"

The fine fragrance of the English Rose

"CHAMINADE"

The favoured fragrance of Seven Royal Courts

Each, in the two different presentations illustrated above, has inaugurated a fashion wherever introduced, and grows in favour among a wider circle every year.

EXPORT QUOTATIONS IN BOND PER DOZEN

"JUNE ROSES"

(Gold-lettered flat bottles)

Cat. No.	Size	Price
800B	14 gm.	40/6
800½B	28 gm.	56/–
801B	42 gm.	72/–
803B	110 gm.	148/–

(Standard square bottles—labelled)

Cat. No.	Size	Price
800	1 oz.	44/6
801	1½ oz.	55/6
802	2 oz.	72/–
803	4 oz.	128/–

"CHAMINADE"

(Gold-lettered flat bottles)

Cat. No.	Size	Price
100B	14 gm.	48/6
100½B	28 gm.	78/–
101B	42 gm.	108/–
103B	110 gm.	284/–

(Standard square bottles—labelled)

Cat. No.	Size	Price
101	1 oz.	76/–
102	2 oz.	132/–
103	4 oz.	248/–

MORNY

6 New Burlington Street, London, W.1

Morny

Toilet Luxuries



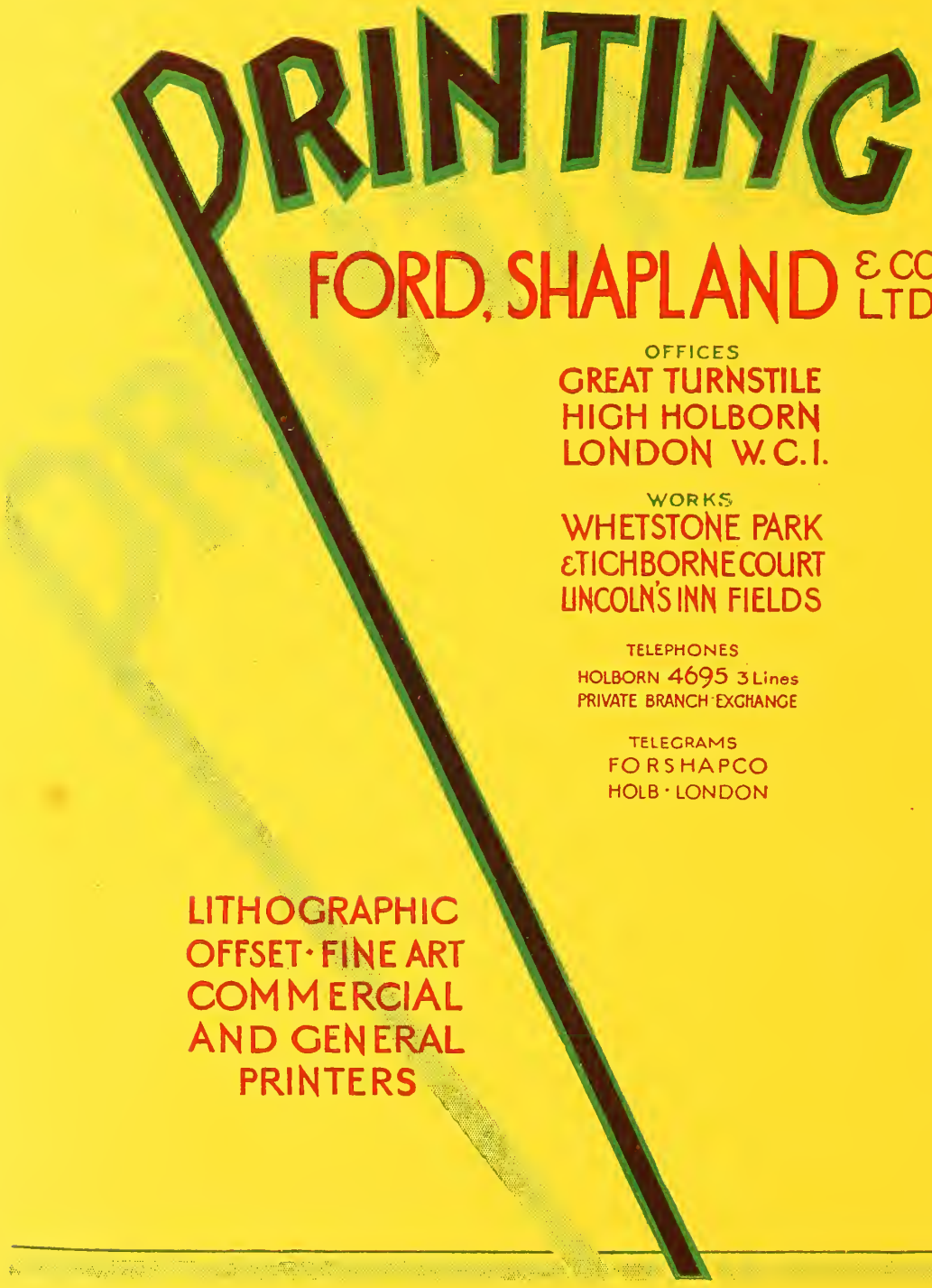
World-wide fame has been achieved by the two delightful series of MORNY Toilet Luxuries fragrant with the perfumes shown on the opposite page.

"JUNE ROSES" Cat. No.	Per dozen	Product	"CHAMINADE" Cat. No.	Per dozen
810	24/-	Bath Salts	110	32/-
816½	14/-	Bath Salts Tablets (6s.)	116½	18/-
830	40/-	Bath Dusting Powder	130	40/-
913	16/-	Bath Soap de Luxe	213	16/-
840	40/-	Complexion Powder	140	40/-
836	36/-	Compact (2⅛ inch luxury model)	136	36/-
930	44/-	Day Cream	230	44/-
939	32/-	Night Cream	230	32/-
950	12/-	Talcum	250	12/-

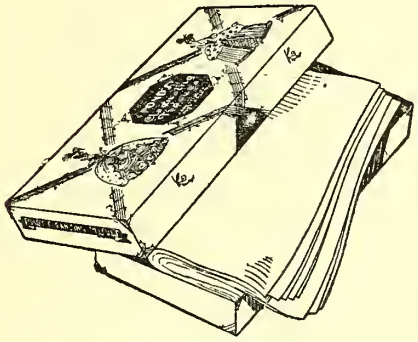
Etc., etc.

MORNY

6 New Burlington Street, London, W.1


PRINTING
FORD, SHAPLAND & CO LTD
OFFICES
GREAT TURNSTILE
HIGH HOLBORN
LONDON W.C.I.
WORKS
WHETSTONE PARK
& TICHBORNE COURT
LINCOLN'S INN FIELDS
TELEPHONES
HOLBORN 4695 3 Lines
PRIVATE BRANCH EXCHANGE
TELEGRAMS
FORSHAPCO
HOLB · LONDON
LITHOGRAPHIC
OFFSET · FINE ART
COMMERCIAL
AND GENERAL
PRINTERS

GREAT SUCCESS of POND'S NEW CLEANSING TISSUES



Pond's new *Cleansing Tissues* have been designed to meet an urgent need for a better, more economical, and more effective way of removing cold cream after use. *Pond's Tissues* have four great qualities—they are ample in size—they are soft as silk—yet they are so tough they do not tear or roll up into balls—and finally they are more absorbent than the ordinary towel; they absorb both cream and dirt together and thus increase the beneficial results of cold cream cleansing. Each tissue is thrown away after use, thus saving laundry bills.

LARGE DEMAND PERMITS REDUCTION IN PRICE

NEW POPULAR SIZE at 9d.

It has been found that these new Cleansing Tissues appeal to all classes. In order to cater for thosewho'can make only a small outlay—as well as for those who like to make a small purchase to start with in order to test the merits of the product—this new popular size has been introduced at a price which is within everybody's reach. This popular size taps a new market and is certain to result in large sales. It is certain also that it will have a favourable influence on the sales of the larger sizes.

Old Prices ~~2/6~~ ~~1/6~~

NEW PRICES
(AS FROM AUGUST 1ST)

2/-
1/3
9d

Pond's new *Cleansing Tissues* have received such an enthusiastic welcome from women that the proprietors have considered it policy to take advantage of the economies of large scale production by reducing the price—and thus paving the way to still larger sales. From *August 1st* the 2/6 and 1/6 sizes will be retailed at 2/- and 1/3 respectively, while a third size will be added — a 9d. size.

Chemists and Hairdressers will be allowed one month in which to dispose of old stocks. All goods ordered during July will be invoiced at the new terms. Write without delay to Pond's Extract Company for trade terms and full particulars.

WRITE FOR NEW TERMS
to:
POND'S EXTRACT CO.,
103 St. John St., LONDON, E.C.1

Every one a household name

DRUMMER DYES

⁂ ⁂

JIFFY 2d. TUBE DYE

⁂ ⁂

MOVOL Iron Mould Remover

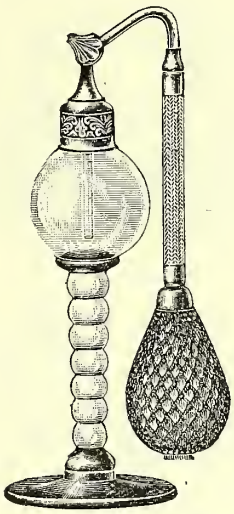
THESE products of Edge's have been firm favourites for years. Tried and found true, they have the confidence of every housewife and, consequently, they need no pushing. Undoubtedly, they are the finest combination of profit-makers it is possible to get—always enjoying a keen demand and constantly building goodwill for the retailer who sells them.

Behind these famous products there is continuous advertising constantly keeping their names before the public and creating that lively interest which you can turn into sales by using the Display Cabinets, Showcards, Cut-outs, Booklets, and other matter which holders of stock can have free.

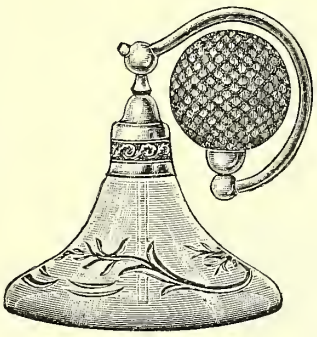
EDGE'S, BOLTON

Also makers of Edge's Dolly Blue, Dolly Cream, etc.

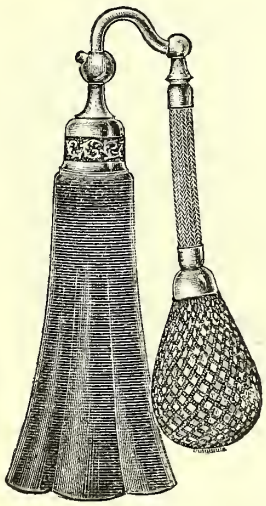




F—53



E—54



E—53

DeVilbiss

GUARANTEED

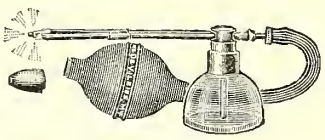
PERFUMIZERS & ATOMIZERS

THE DE VILBISS CO., LTD.
WEST DRAYTON, MIDDLESEX.

London Showrooms: 27 OLD BOND ST., W. 'Phone: Gerrard 6867

DE VILBISS Sprays and Atomizers are well-known throughout the World.

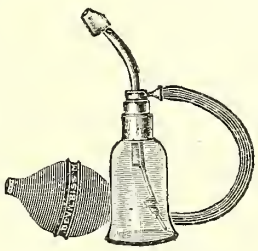
They are reliable, of sound construction and absolutely adapted for the purposes for which they are designed.



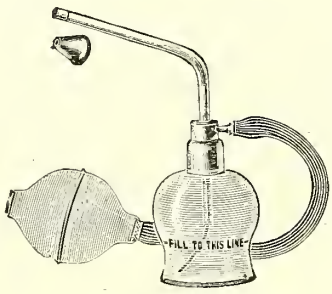
DEVILBISS, No. 15



ATLAS, No. 21



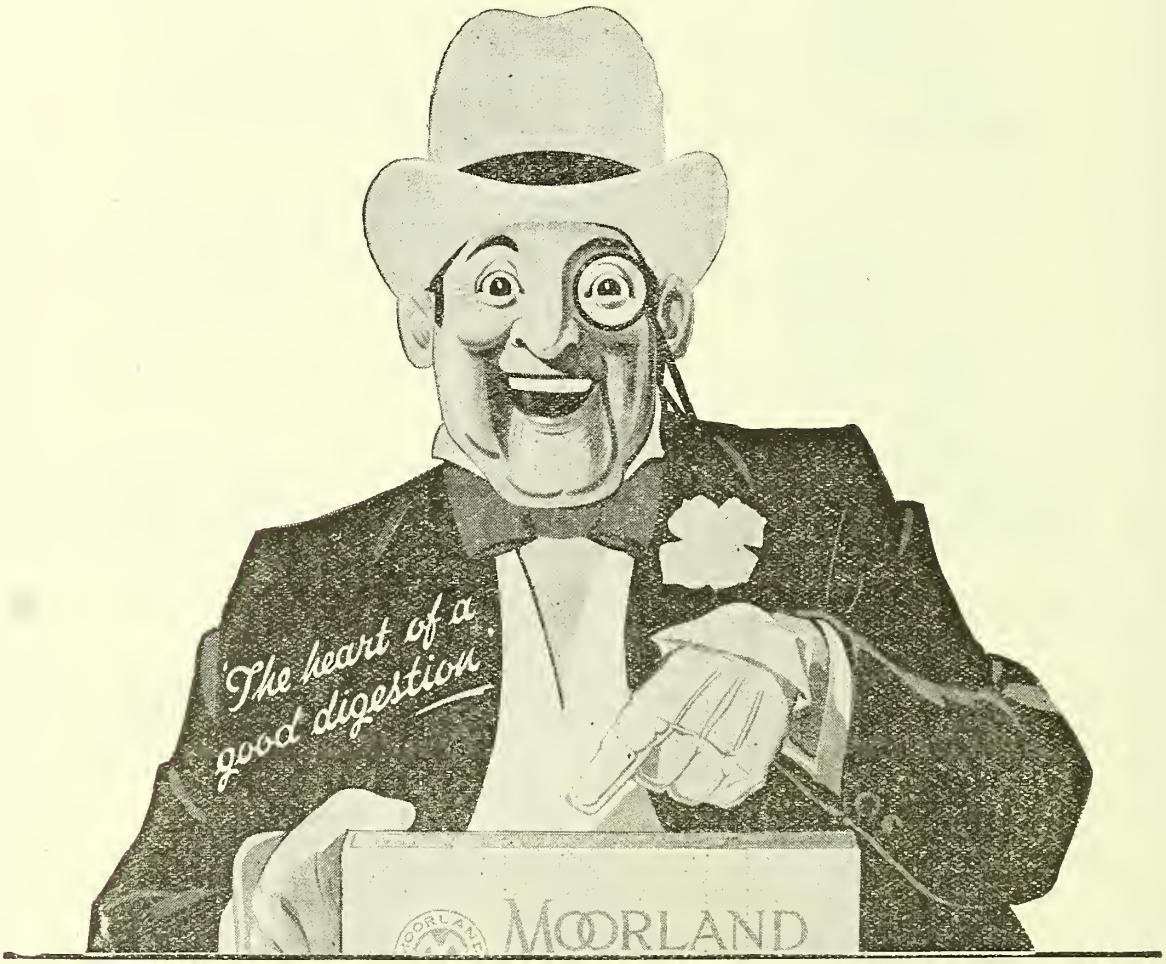
DEVILBISS, No. 41



ATLAS, No. 29

Sales are increasing daily without a break. Their growth is continual—and no pharmacist should overlook them

Display 'Moorlands'—and make money



QUALITY GOES 'IN' BEFORE THE NAME GOES 'ON'

W. B. CARTWRIGHT LTD. RAWDON LEEDS

Make *your* profits Bigger & Bigger with 'Moorland's'

"Moorlands" are winning new customers daily and the superior quality keeps them. They have firmly established themselves as the best digestive tablets of their kind. They will pay you a big dividend in more custom, larger and more profitable sales, plus increased goodwill

Heaps of strong and forceful showmatter with all orders.

ONE DOZ. 4/6. ONE GROSS. 51/-. RETAIL 7½d





QUALITY GOES 'IN' BEFORE THE NAME GOES 'ON'

W. B. CARTWRIGHT LTD. RAWDON LEEDS



Place your order now for "KAYBRO Anti-Sting"—it is being advertised throughout the Kingdom. Display the attractive counter cartons and take advantage of the demand that our backing will create.

"KAYBRO Anti-Sting" is an ideal Summer line. Takes up little space and gives big returns. Sells quickly with generous profit.

"KAYBRO Anti-Sting" wards off gnats, mosquitoes, wasps, midges, etc., and is invaluable for relieving pain and reducing swelling after being stung.

We are telling the public to get it from you—don't disappoint them.

From your wholesaler, or counter display box of twelve (as illustrated), 6/- post free from the proprietors.

KAY BROTHERS LTD. **KAYBRO ANTI-STING** STOCKPORT ENG.

A HOUSEHOLD NECESSITY

AEROFUME Regd.

SEE TO YOUR STOCKS.



In Bottles

2/3 : 3/6 : 6/3

Also complete with Spray (as illus.)

5/6

Subject to 33⅓%

Carriage paid on orders of 1 dozen to any part of U.K.

Showcards supplied.

Obtainable from all usual wholesalers or from :

WALDEN, WALDEN & CO.

15 Grape St., New Oxford St., W.C

LOSALL'S SALT

SELLS FREELY AND READILY.

PAYS 50% ON OUTLAY.

An infallible remedy for

Gout
Rheumatism
Eczema & Skin Affections



P.A.T.A. doz. net

4 oz. tins 1/-, 8/-
8 oz. ,, 1/9, 14/-
Bottles 2/-, 16/-

Attractive advertising matter supplied on application.

SOLD EVERYWHERE.

Manufactured by

LOFTHOUSE & SALTMER, Ltd.
HULL.

Make this NYAL *your sign*

NYAL *stands for*

The best goods that scientific skill can produce.
A price which gives you a fair margin.
Prompt and fair dealing.
Courteous and square treatment.
Friendly business relationships.

This is the NYAL Policy

THERE IS NO PRICE-CUTTING.
NYAL LINES ARE NOT SUPPLIED TO OTHER TRADERS.
NYAL MEDICINAL AND TOILET LINES ARE THE BEST THE DRUG WORLD PRODUCES.
NYAL LINES ALL CARRY A MONEY-BACK GUARANTEE.

We hope you are interested. We shall be pleased to give further details.
Applications for Agencies invited.

NYAL Company Limited
SLOUGH, Bucks.

Telegrams: "Nyalemedy, Phone, Slough." *Telephone:* Slough 615.

NYAL QUALITY

"CARTOL" LOTION

"MOLIVENE" (Malt and Olive Oil)

"ST. JOHN'S" LINIMENT

"CASTELL'S" CELEBRATED COUGH CURE

"KINOSALVE" (Veterinary Salve)

"VUNDI" LYSOL

"SPUN" OINTMENTS

NOLON CREAM EMULSION
65% Liq. Paraffin
with Agar Agar

SPUN OINTMENTS

Originated by us a quarter of a century ago. Unrivalled for smoothness. A wide range of formulae.

GLYCERINE

HONEY AND LEMON COUGH BALSAM

"RED SEAL" MALT AND OIL

"YE-NA" TOILET PREPS.

"PRO-SPA-QUA" EFFERVESCING CARLSBAD SALTS

"TUPLEY'S" FOOT WASH

"BLUE CROSS" FOOT POWDER

Robert Blackie

Shen Works, Tower Bridge Rd.

London, S.E.1

Telephone: *Hop 2422 and 2423.*

Telegrams: *"Ushenspuna, London."*

LIME CREAM
NURSERY POWDERS
EMULSIONS
MALT AND OIL
TOOTH PASTES
FULLER'S EARTH
LIQUID PARAFFIN
COUGH MIXTURES
BATH CRYSTALS
BRILLIANTINES
CHEMICAL FOOD
SYRUP OF FIGS
FACE POWDERS

We cater for every possible requirement of Pharmacists, and our many years of practical experience enable us to offer the finest products at the most reasonable prices.

We invite you to ask us about any type of product on the lines of those enumerated here.

CITRATE OF MAGNESIA
CATAPLASMA KAOLIN B.P.C.
TOOTH POWDERS
PEROXIDE OF HYDROGEN
LYSOLS and DISINFECTING FLUIDS
OLIVE OIL
ORANGE QUININE WINE
VIOLET POWDER
VANISHING CREAMS
SEIDLITZ POWDERS
LOTIONS
GLYCERINE AND CUCUMBER

NOLON CREAM EMULSION
65% Liq. Paraffin
with Agar Agar



TRADE MARK.



AWARDS—
London, 1881.
Vienna, 1883.
Calcutta, 1834.
Chicago, 1893.





TRADE MARK.

ZINC OXIDE

("Puriss")

Made by *direct combustion of the metal*, this Zinc Oxide is beautifully white and light and tests fully 99.8%.

ZINC OXIDE

("Puriss Extra")

Tests upwards of 99.96%. It is free from iron, etc., and almost chemically pure, being manufactured from electrolytic Virgin Spelter.

LYSOL

"Is of Exceptional Quality"

—Government report on a recent shipment.

4 oz. bottles	- -	**5/-** doz.
8 „ „	- -	**9/-** „
16 „ „	- -	**15/6** „
One gall. tins free	-	**6/6** each
5/10 „ drums extra		**5/-** gall.
40 „ casks free		**4/6** „

Non-corrosive and without objectionable odour.
Fully 50 Cresols.
A clear solution in all proportions.

It will pay you to send for Lists and full particulars.

H. E. STEVENSON & CO.

Wholesale Druggists and Manufacturing Chemists,

122 Great Suffolk Street, London, S.E.1

JOHN THOMPSON (WHOLESALE DRUGGISTS 1921) LTD.

27/35 DUKE STREET
LIVERPOOL

TELEGRAPHIC ADDRESS - - "DRUGS, LIVERPOOL"
TELEPHONES - - - 1434 ROYAL, 5 LINES

The House for all Provincial Chemists

DRUGS, GALENICALS & PHARMACEUTICAL PREPARATIONS

All Drugs are guaranteed genuine. These are manufactured in our own Laboratories from finest quality Drugs under rigid analytical control, and are guaranteed to conform to B.P. 1914 and B.P.C. 1923 (unless otherwise specified).

PACKED DRUGS

We pack many excellent Pharmaceutical Specialities, most of which may be obtained with own name and address on label. We recommend these with every confidence—the products and packing are of the highest standard.

PATENT MEDICINES & PROPRIETARY ARTICLES

We carry a wide range of all Proprietary Articles, many of which are supplied on Makers' terms.

DRUGGISTS' SUNDRIES

Our stock is a large and comprehensive one, and our prices are competitive.

PHOTOGRAPHIC SUPPLIES

We have a complete stock of Photographic Supplies, Cameras, Films, Plates, and all Photographic Sundries. Fresh stocks and prompt deliveries.

TOBACCO & CIGARETTES

We stock all leading lines of Tobacco and Cigarettes, and invite enquiries.

SHOP FITTINGS

We have practical knowledge of present day requirements, our designers specialise in this branch. Shop Fittings of every description supplied, catalogues free on request.

DELIVERY

Our rapid System of Motor, Rail, or Steamer delivery is "Second to None."

We are proprietors of ***Jaytee's Provence Oil & Logan's Liniment*** *: Bycanthar "Osis" Hair Cream : "Cheshire Hunt" Cloth Balls : Jaytee's Lysol : Thompson's Furniture Cream : Laville's Ballroom Floor Polish : Durkee's Ointment & Asthma Powder : and Laville's Hair Dye.*

WRITE FOR PRICE LISTS

Use our LIVE service to increase your PHOTOGRAPHIC SALES

THE GREAT THING is to be able to replenish your stock with unfailing promptness.

You can rely upon the complete and quick execution of your daily order by sending it to HIRST, BROOKE & HIRST.

They carry one of the largest and most comprehensive stocks in the country and are Official Distributors of "Ensign" lines. They hold a full range of popular CAMERAS and SUNDRIES, also large supplies of all the well-known FILMS, PLATES and PAPERS, including IMPERIAL, ILLINGWORTH, RAJAH, WELLINGTON, AGFA, GEVAERT, PATHE and ILFORD.

NO WAITING.—Prompt delivery ensured by a fleet of motors.

Try HIRST, BROOKE & HIRST with your next photographic order.



TO WHOLESALE AND EXPORT TRADES.

SOLID AND LIQUID

EXTRACTS.

INTERNATIONAL EXHIBITIONS, LONDON, 1862, CHICAGO, 1893; PRIZE MEDALS AWARDED FOR EXTRACTS, OILS, HERBS; ALSO AWARD AT PARIS EXHIBITION, 1867.

Green Extracts, Standardised Extracts,
Belladonna and Henbane Preparations,
Essential Oils of Lavender and Peppermint,
Expressed Juices, Scammony Resin,
Jalap Resin, Elaterium,
Mercurial Pill and Ointment,
Aloin, Euonymin, Podophyllin,
Leptandrin, Dried Medicinal Leaves,
Dandelion Root, Quassia Extract,
Chlorophyll, Gingerin, Capsicin.

MEDICINAL SPIRITS

IN BOND FOR EXPORT.

WILLIAM RANSOM & SON, Ltd.

(Estab. 75 years), Mfg. Phar. Chemists,
Distillers of Essential Oils, Cultivators of Medicinal Plants,

Telephone: 95 HITCHIN.
Telegraphic Address:
"RANSOMS, CHEMISTS, HITCHIN,"
CODE 5th edition A.B C.
and "BENTLEYS."

Hitchin, nr. London.



Cutting Belladonna on the StaffAllenS farms at Long Melford.

StaffAllenS GREEN EXTRACTS

StaffAllenS unique manufacturing facilities enable the freshly cut plants to be handled without loss of time.

Careful drying and long experience of manufacture ensures that the products shall retain their full therapeutic value.

Alkaloidal strengths are never in question with StaffAllenS extracts.



EXT. BELLADONNAE VIRIDE
EXT. HYOSCYAMI VIRIDE
EXT. HYOSCYAMI 1st YEAR
FOL. BELLADONNAE FOL. HYOSCYAMI

Send your enquiries to—

STAFFORD ALLEN & SONS, LTD., COWPER STREET, LONDON, E.C 2

E E*

Make money from the demand for *Natural* Drinks—

GOODALLS'
Fruit Squashes

This summer you will sell more — more easily

There are several good reasons why you will make more, and easier, sales and profits during the summer months by selling Goodall's Natural Fruit Squashes. What's in a name? In the name of Goodall, Backhouse there is a very big measure of public confidence. Anything offered under that name is accepted without question as the best of its kind. This simple guarantee of the maker's reputation means easier sales. ¶ Appearance helps largely, too. The decanters in which these Fruit Squashes are sold are handsome and distinctive in appearance. They are the sort of bottles that promise something good inside, that look as though the maker's had produced something worth offering in a worth-while fashion. Incidently they are the sort of bottles worth keeping after the contents have disappeared. Appearance helps towards easier sales.



Quality counts most of all—more particularly in repeat sales which are most profitable. Goodall's Fruit Squashes are as good as pure ingredients and human skill can make them. There are 3 flavours, Lemon, Orange and Grape Fruit, and each is made from fresh fruit and pure cane sugar. No synthetic flavours are used - the clean, piquant, refreshing flavour comes from fresh, ripe fruit, not bought unseen from distant groves but selected by experts with eye and palate from the latest arrivals at the Leeds Markets. Price too, counts heavily. Goodall's Natural Fruit Squashes are as good in quality as any on the market; they are lower in price than most.

A dozen bottles of Goodall's Natural Fruit Squashes are in themselves a display that will do all the selling necessary. Backed up by this attractive showcard size 12½ in. × 9 in., given free with each order, they are irresistible. There will be a big demand for Fruit Drinks this summer. Send an order now and reap the golden harvest.

PRICE LIST

GOODALL'S NATURAL FRUIT SQUASHES

MADE in three flavours, Lemon, Orange and Grape Fruit, bottled in attractive clear-glass decanters.

Orange and Lemon make 6 Decanters to the gallon, Grape Fruit 8 and their cost is **18**/- per dozen (small quantities).

1 doz. case - - - **17**/- net
3 cases at - - - **16**/**6** net
3 doz. carriage paid, Showcards Free

GOODALL, BACKHOUSE & CO. LEEDS

The Speed Men's Fixatives



Ku-Bist Hair Fixative and Rosola (Fixative with Oil) have been regularly advertised to out-door men week after week in "The Autocar," "The Motor" and "The Motorcycle," and are now recognised throughout the country as the supreme fixatives for motorists.

The advertising is continuing and increasing, and men will no longer accept the older brands—they are demanding the new brand that gives guaranteed results.

Ruffle proof to over 70 m.p.h.

The holding properties of Ku-Bist Hair Fixative have been tested to destruction. Lapping Brooklands at 70 m.p.h. failed to lift a whisker. On a cross-Channel flight, however, failure utter and complete was recorded—but not until 140 m. p.h.

"The Beauty Shop"

June 1929, in a cordial review of the Ku-Bist-Fixatives says :- ". . . . . a fixative such as this is bound to have a ready sale and in conjunction with the advertising, the retailer is here presented with a line which he can safely buy and easily sell . . . . . "



Ku-Bist Hair Fixative & Rosola

(Fixative perfectly amalgamated with Rose Oil)

Known and Wanted everywhere-are YOU showing them?

Prices:

(Small)	**1/-**	size ..	**8/-**	per doz.
(Medium)	**1/9**	„ ..	**13/6**	„
(Large)	**2/9**	„ ..	**21/-**	„

Other Ku-Bist Preparations (similar pack)

After-Shave Cream
Brilliantine
Brilliantine Rose
Brilliantine Lily
Bay Rum
Bay Rum and Cantharides
Bay Rum and Jaborandi
Jasmine Oil
Violet Oil
Cocoanut Oil, Dry and Pine Tar Shampoos
Toilet Paraffin
Wave Setting Lotion

(Small)	**1/3**	size	**10/-**	per doz. net.
(Medium)	**2/3**	„	**17/-**	„
(Large)	**3/3**	„	**23/-**	„

£2 ORDERS Carriage Paid.

ALSO

Cold Cream and Vanishing Cream
Skin Food
Talcum Powder
Powders (loose) 4 shades
Ku-Bist Compact
Lipsticks—Vermeil and Electric

Send a trial order or ask for sample and fuller details.

KU-BIST SALES DEPT., WHITE HORSE STREET, LEEDS.

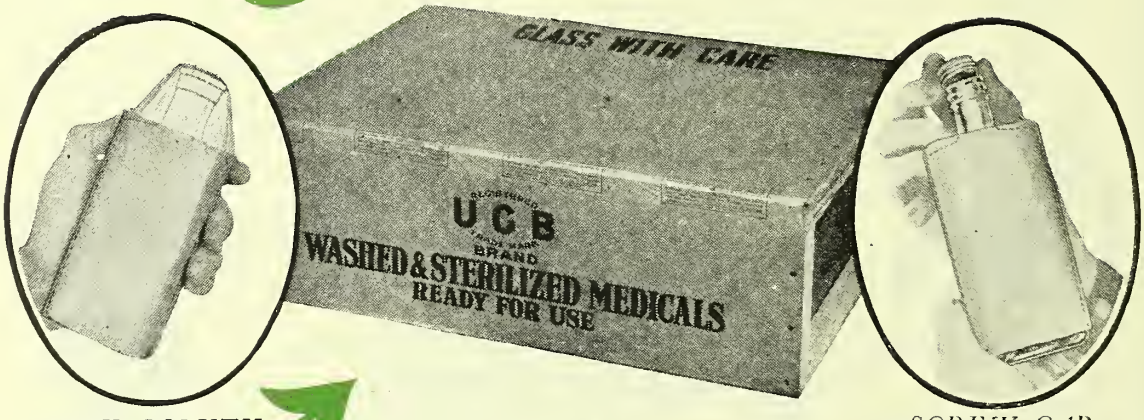
Scottish Agents: S. S. GOLDBERG, LTD., 153, Oxford St., GLASGOW, C.5.



This shapely Pack sells on sight

The U.G.B. COMPLETE Medical Bottle Service

Packed in sealed non-returnable standardized fibre cartons.



CORK MOUTH SERVICE

SCREW CAP SERVICE

Washed & Sterilized— ready for use

Indispensable to the busy dispenser

NOW AVAILABLE FROM LEADING WHOLESALE DISTRIBUTORS

UNITED GLASS BOTTLE MANUFACTURERS · LIMITED

The largest manufacturers of Glass Bottles in Europe

Head Offices:
40/43 NORFOLK ST., STRAND, LONDON, W.C.2
Telephone: Central 8080 (10 lines). Telegrams: "Unglaboman," Estrand, London.

Hewlett's

ESTABLISHED OVER 95 YEARS

STANDARDISED TINCTURES & SPECIAL PREPARATIONS

Mist. Pepsinæ Co. c. Bismutho (Hewlett's) 12/6 per lb.
Packed, for Dispensing only, in 5, 10, 22, 40 & 90-oz. bottles.

Liq. Santal Flav. c. Buchu et Cubebâ (Hewlett's) 12/6 per lb.
Packed, for Dispensing only, in 5, 10, 22, 40 & 90-oz. bottles.

Antiseptic Cream Antithermogen Hæmorrhaline Hormonigen Iodermiol Menthymoline Mist. Damianæ Co. Mist. Hepatica Conc. Mist. Senecio Co. Veronigen Virophos, &c.

HEWLETT'S LYSOL; *Surgical "Creosalgen"* Trade Mark

Mixing bright and clear in water. Contains 50% cresols. "Possesses a higher germicidal value than carbolic acid and probably nearly three times as high."—The Lancet.

Supplied bearing your own name and address on orders of 3 dozen bottles. In 4-oz. bottles, 5/- per doz.; 8-oz. 9/- doz.; 16-oz. 15/6 doz.; 20-oz. 20/- doz.; 32-oz. 27/- doz.

Packed Goods for the Counter.
Concentrated Liquors in Bond.
:: Compressed Tablets. ::
Pearl & Gelatine-coated Pills.
Surgical Instruments, &c., &c.

We have a large department of new and interesting DRUGGISTS' SUNDRIES.

ENQUIRIES INVITED.

C. J. HEWLETT & SON

WIRES: "PEPSIN, FINSQUARE, LONDON"

LIMITED
Wholesale & Export Druggists

PHONE: BISHOPSGATE 1172 & 1173

35/42 Charlotte St., & 83/85 Curtain Rd., London, E.C.2.

EVANS, GADD & CO., LTD.

Wholesale & Manufacturing Chemists

BRISTOL and EXETER.

LARGE STOCKS.

DRUGS, GALENICALS, PATENT MEDICINES,

QUICK DESPATCH.

PROPRIETARY ARTICLES, SURGICAL DRESSINGS, VETERINARY MEDICINES. ETC.

PROFIT & REPUTATION

Assured by avoiding imitations and selling

"O. A. P.'s"

(ORIGINAL ANTISEPTIC PASTILLES)

As prepared by WM. ALFRED JONES, late Joint Proprietor of the

LIVERPOOL THROAT HOSPITAL

Samples and prices on application

Sole Agents, WM. ALFRED JONES LIMITED, West India House, Maryland Street, LIVERPOOL.

D.D. & POISONS REGISTERS

PRESCRIPTION BOOKS, &c.

FOR CHEMISTS, DOCTORS AND HOSPITALS.

30 Patterns. List on application.

H. T. WOODROW & CO. Ltd., 3 Cook St., LIVERPOOL

"YEAST FOR VITAMIN B."

Yeast specially prepared for medicinal purposes.

GUARANTEED ABSOLUTELY PURE.

MIDGLEY & PARKINSON, LTD., WARREN WORKS, PUDSEY, LEEDS.

2 OUTSTANDING LINES

"ATLAS" KATTLEKURE

THE WONDER OINTMENT FOR ALL ANIMALS.

1/6 Size - - 12/- per dozen
2/6 ,, - - 20/- ,, ,,
5/- ,, - - 40/- ,, ,,

CHERRY'S SLUMBER TEA

A Herbal Remedy with an Excellent Name.

A REAL CURE FOR CONSTIPATION AND BILIOUSNESS.

1/3 Size - - 9/- per dozen
3d. Sample Size 2/- ,, ,,

Sole Proprietors: *Your enquiries are invited and appreciated*

CARTER BROTHERS, SHIPLEY, Yorks.

S.V.R. BURROUGH

TRY THE EXTRA RECTIFIED FOR YOUR PERFUMERY
RECTIFIED TO BE THE PUREST AND MOST NEUTRAL

ALL STRENGTHS TO

ABSOLUTE ALCOHOL

DUTY PAID and DUTY FREE for EXPORT and SCIENTIFIC PURPOSES.

LIME JUICE CORDIAL

BURROUGH'S WINES SPIRITS CORDIALS

MAKE A NOTE FOR YOUR XMAS TRADE

"Quinta Real" Elegant Old Tawny Port.

Burrough's Invalid Port.
Ports for Medicating Purposes.
"Donzardo" Sherry—Delicate Pale Dry.
Sherry for Ipecac. Wine.

"Bourg" Freres Champagne.
Orange Wine.
Orange Quinine.
"Bell Bird" Australian Wines.

"WHITE CROSS" WHISKY, BRANDY and RUM

"BEEFEATER" Gin—Purest and Best.

Write for Samples and Quotations.

Jas. Burrough Ltd.

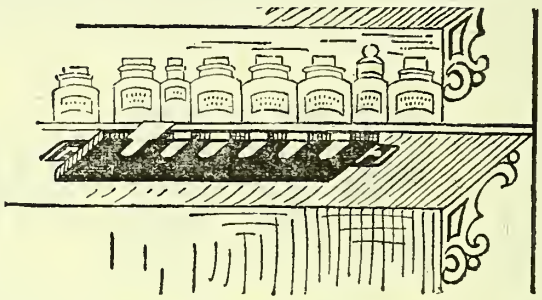
4 Cale Distillery, Lambeth, S.E.11

Telegrams: "Burrocale, Phone, London." Estd. at Chelsea 1820. Telephone: Reliance 1166.

Blackwell, Hayes & Co.
LIMITED

For 50 YEARS
Specialists in
FLAVOURS
Fruit Essences and Harmless Colours
Bulk or Packed
ALL PRODUCTS GUARANTEED TO CONFORM TO THE FOOD & DRUGS ACT

MOOR STREET & ALBERT STREET
BIRMINGHAM
Phone : Central 1267. *Wires : "Blacwelaze, B'ham."*



THE RACK, VIEWED FROM BENEATH.

THE "WILSAN"
(Provisional Patent)
LABEL RACK
which is made to fix to under side of Dispensing Bottle Shelf. It holds six separate lots of 100 labels which can be withdrawn singly. Price 8/6.

Full particulars from
JAMES TOWNSEND & SONS,
Label Printers, EXETER.
London Office:—54, FARRINGDON STREET, E.C.4.



JOHN BELL, HILLS & LUCAS LTD.
OXFORD WORKS, TOWER BRIDGE ROAD, LONDON, S.E.1.
130 *years' reputation for purity and excellence.*
Pharmaceutical preparations, Drugs and Chemicals of high quality.
Packed Goods of elegant finish and Choice of many styles.
Specialists in compounding and packing customers' private formulas.
Price List on application *Telephone: Bermondsey 1141*

BESORBON
(Dr. Hill's Formula)
MEDICINAL SNUFF. ABSOLUTELY THE FINEST REMEDY FOR CATARRH & COLD IN THE HEAD.
Richard Dickeson & Co. *(Incorporated with Reynolds, Sons & Co., Ltd.)* 57-59 CHARTERHOUSE STREET, LONDON, E.C.1.

MAWSONS'
OPTIMUS FILTERS
The most efficient household filter. In different sizes. Earthenware, Glass and Tourist patterns. Stocked by Leading Wholesalers.
WRITE FOR SPECIAL TERMS TO PROPRIETORS:
MAWSON & PROCTOR, Ltd. MANUFACTURING CHEMISTS NEWCASTLE-ON-TYNE

GLANOID
MEDICINAL PRODUCTS of ANIMAL ORIGIN

GLANDULARS.

CORPUS LUTEUM.
LIVER.
ORCHITIC.
OVARIAN (Residue).
OVARIAN (W.G.).
PANCREAS.
PARATHYROID.
PITUITARY (Ant. Lobe).
PITUITARY (Post. Lobe).
PITUITARY (W.G.).
SPLEEN.
SUPRARENAL (Cortex).
SUPRARENAL (W.G.).
THYMUS.
THYROID.

DIGESTIVE FERMENTS.

AMYLOPSIN.
DIASTASE.
ENZYMES.
PEPSIN (all tests).
PANCREATIN (Triple U.S.P.)
PANCREATIN (U.S.P.).
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Every process from Pen to finished product controlled in the

ARMOUR LABORATORIES

SUPREME. ACTIVE. DEPENDABLE

ARMOUR GLANOID BRAND

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A guarantee of maximum activity for all medicinal products of animal origin is ensured by processes embodying the following:—

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The Armour Laboratories are solely designed to carry to a state of perfection those products, provided in plenty by our Abattoirs, which in their finished condition are important therapeutic agents.

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Contains the essential Vitamins in a convenient form.

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Wholesale Chemists and Malt Specialists,

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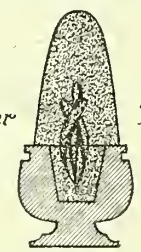
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Everyone interested in developing a profitable business in a leading British line, through a local monopoly, should consider this offer made by the manufacturers of Nostroline Nasal Specific. "Nostroline" is firmly established as a household remedy of repute in Great Britain, Ireland, the Dominions and most of the British Colonies.

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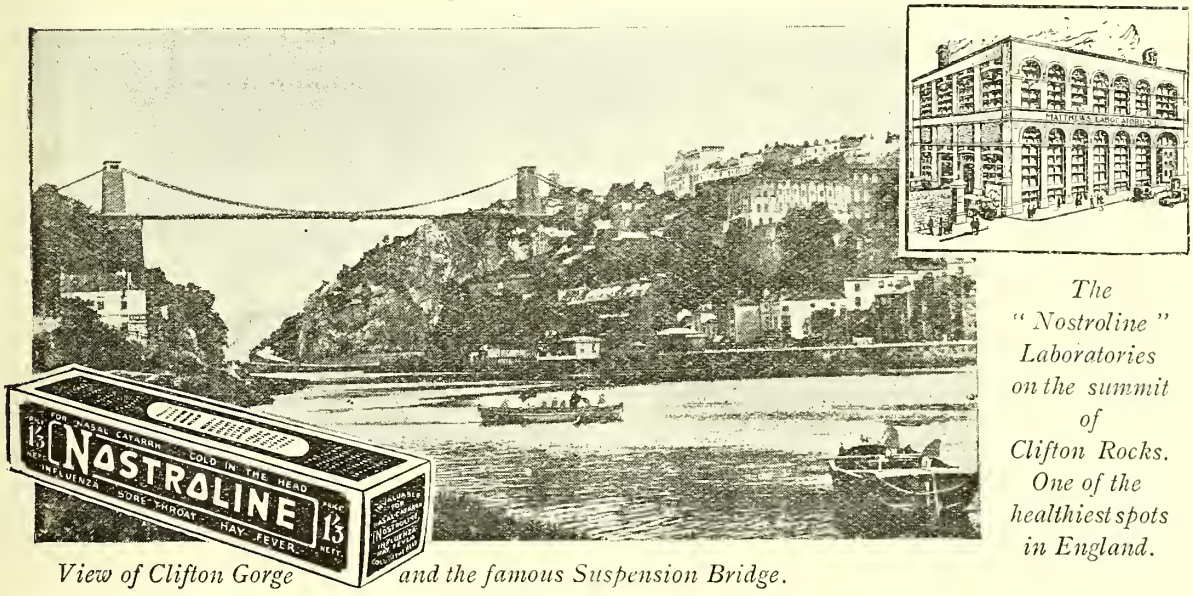
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Ask us for an agency in your territory and for prices, samples, and terms for direct supplies of "Nostroline," the World's Nasal Specific.

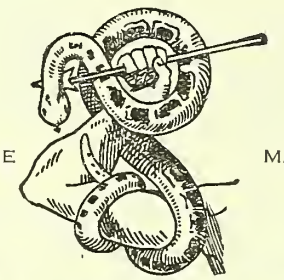
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Supplied only in Casks, Carboys and Winchesters.
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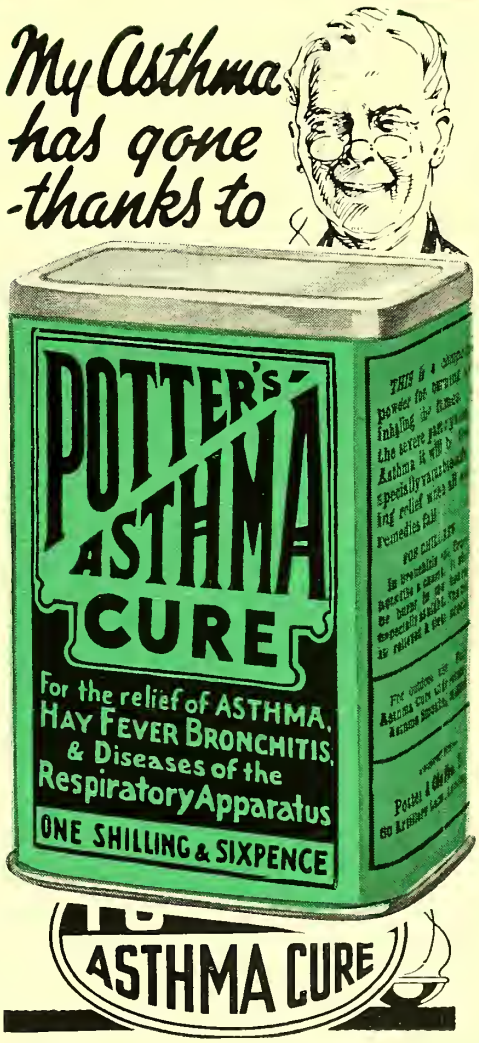
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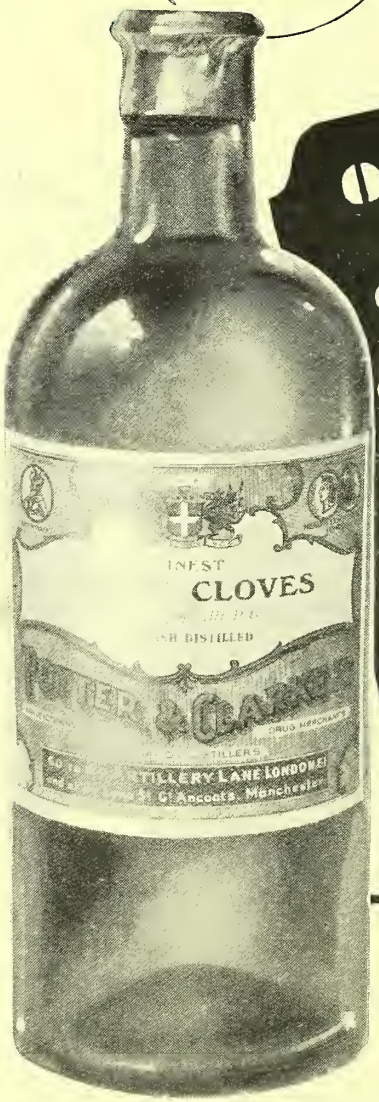
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The **WINGED LION BRAND**

HERBS *in* PACKETS

Have the largest sale of any Brand in the United Kingdom.

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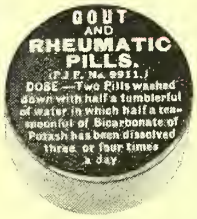
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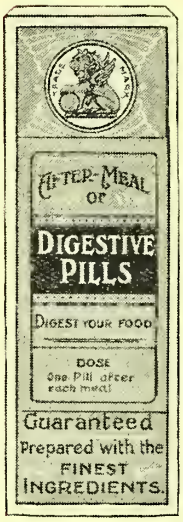
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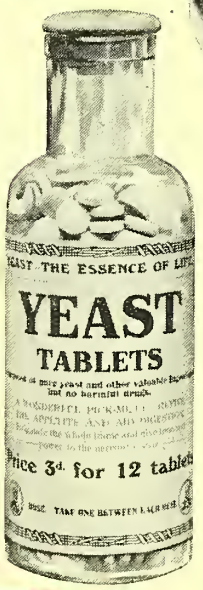


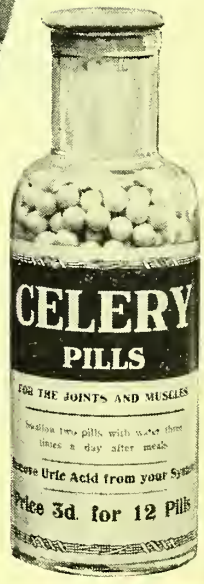












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ARNAUD'S LAVENDER WATER



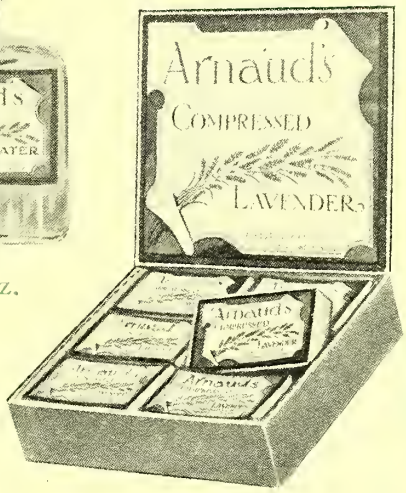
21/- Per Doz.

ARNAUD'S LAVENDER BATH TABLETS



15/- Gross.

ARNAUD'S COMPRESSED LAVENDER



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Artistically Packed





	doz.	Specially Prepared for Export doz.
24 oz. Boxwood Top, Skin Capped Bottles as illustrated	18/-	21/-
12 oz. " " " "	10/-	12/-

We pack a large variety of sizes and styles in addition to the above.

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PRODUCTS
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L.L.C. Lozenges—hand-cut
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Any of the above packed in 2lb. free white flint jars if required

We are the sole proprietors and manufacturers of the well-known

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Packed in 3d. pocket tubes and 4 or 7lb. white flint jars.

Special Terms—Showcards and samples gladly sent on receipt of trade p.c.

Our increased advertising campaign will commence for these Pastilles . . .

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For **Coughs Colds Bronchitis &c.**



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PRICE **1/3** per bottle.

IT WILL PAY YOU TO STOCK

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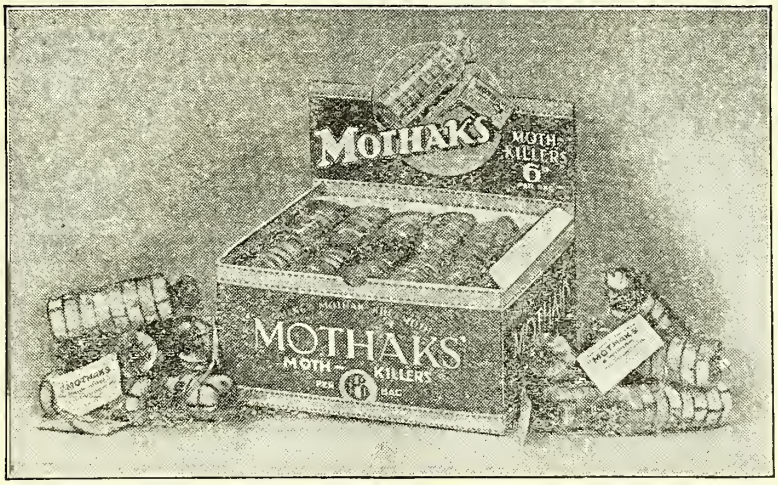
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ONE OF THE BIGGEST SELLERS AND BEST PROFIT MAKERS OF THE YEAR

'MOTHAKS' Regd.

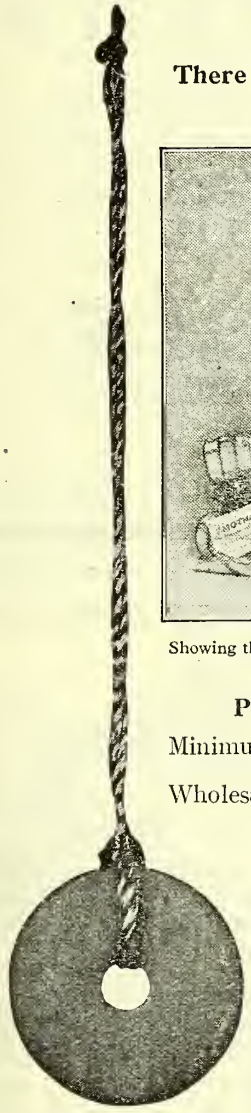
(MOTH KILLERS)

There is a tremendous demand for 'Mothaks.' Do not miss your share of the trade. 'Mothaks' sell at sight.



Showing the individual packages of 'Mothaks' and the display outers of 3 doz. in which they are packed.

THE WINDOW DISPLAY SHOWN BELOW SOLD OVER 1,800 Bags OF 'MOTHAKS' IN 2 WEEKS.



'MOTHAK' all complete and ready for hanging up.

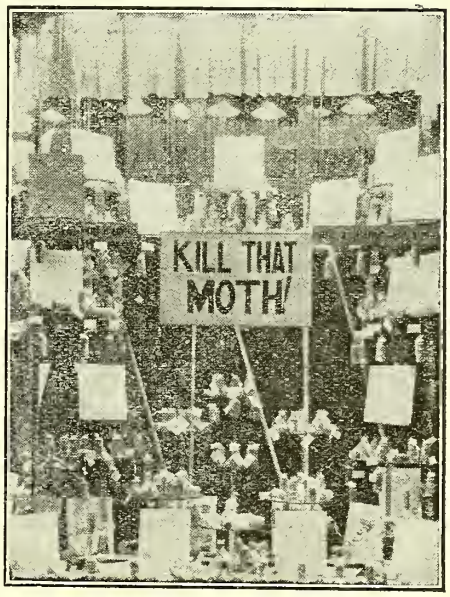
PRICE OF 'MOTHAKS'

Minimum Retail Selling Price per bag of eight	6d.
Wholesale Price - - - per dozen	4/-
Ditto - - - - six dozen carr. paid	24/-
Ditto up to 2 gross per gross carr. paid	48/-
Ditto 2 gross and over per gross carr. paid	45/-

Big Bonus For Special Window Display

SHOWCARDS FREE

1 dozen 6d. bags of 'Mothaks' FREE with one gross. OUTLAY 48/-, SELL FOR 78/-, PROFIT 30/-. 3 dozen 6d. bags of 'Mothaks' FREE with two gross. OUTLAY 90/-, SELL FOR 162/-, PROFIT 72/-.



Sole Makers :

THOMPSON & CAPPER WHOLESALE LTD.

MANESTY BUILDINGS, COLLEGE LANE, LIVERPOOL

YOUR PROFIT NEARLY DOUBLED

Send for one of these Parcels and you get a generous Bonus in addition to profit. Display Lysolats Showcards and Window Bills at the same time; they have proved big profit-earners.



Artistic 3-fold Display Screen, Showcards, Window Bills and Pamphlets sent free with every order.

Parcel No. 1.—3 doz. 1/3 size @ 10/6 per doz.
Bonus 3 tins 1/3 size.

Parcel No. 2.—5 doz. 1/3 size @ 10/6 per doz. and half doz. 2/- size @ 18/- per doz.
Bonus 6 tins 1/3 size and 1 tin 2/- size.

Parcel No. 3.—10 doz. 1/3 size @ 10/6 per doz. and 2 doz. 2/- size @ 18/- per doz.
Bonus 12 tins 1/3 size and 6 tins 2/- size.

Carriage paid through usual wholesaler.

Lysolats

PATENT 118667 **(LYSOL TABLETS)**

The safe form of lysol

SOLIDOL CHEMICAL LTD., Disney Street, LONDON, S.E.1

Powerful

"IALINE" Brand Disinfectant is highly concentrated and has been officially approved by the Ministry of Agriculture in the proportion of 1 to 99 for the purposes of the Diseases of Animals (Disinfection) Acts. May be packed and sold by Chemists and Druggists under own name. Write for details of arrangement.



Manufacturers—

BURT, BOULTON & HAYWOOD, LTD

WORKS: Great Britain, France, Spain & Belgium.

Coal Tar Distillers.
Salisbury House, London Wall, LONDON, E.C.2

Telephone: London Wall 7569.
Telegrams: "Burboul, Ave, London."

TRY AN 'ASPRO' WINDOW DISPLAY AND BUY ON BONUS TERMS

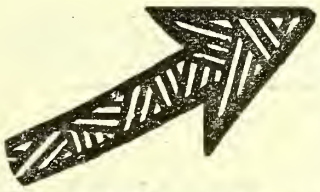
We are frequently pointing out the wonderful pulling power of the 'ASPRO' Window Display on account of its linking up with continuous and ever-increasing publicity. A test made of a display will interest all chemists who wish to increase their business.

'ASPRO' has a Tremendous Power to Build Up a Chemist's Business

A test will demonstrate what a great power 'ASPRO' Publicity is to help the Chemist. It is not only on account of the actual 'ASPRO' that it usually sells, but also on its great value in bringing customers into the Chemist's shop who would not otherwise have come in. Every time you put an 'ASPRO' window display in you connect up with a £200,000 continuous advertising activity just the same as if you put your own name at the foot of the advertisements. Why not write us for a window display to-day, also take advantage of the liberal bonus terms shown below whereby you can make an extra 17% profit?



SEND FOR ONE OF THESE DISPLAYS



Buy 'ASPRO' on Bonus Terms and Get 17% EXTRA PROFIT

Just have a look through your purchases of 'ASPRO' and you will find that you are in a position to buy on Bonus terms. Buying on Bonus terms means extra profit averaging 17% to you. So why not place your next order through your Wholesaler on Bonus terms?

ASPRO REG. TRADE MARK

WHAT THE BONUS IS

BONUS ON 10's

One Gross Order - Bonus 1 dozen packets.
Half Gross Order - Bonus ½ dozen packets.
Half Gross 10's is minimum order accepted for Bonus purposes.

BONUS ON 25's

One Gross Order - Bonus 2 dozen packets.
Half Gross Order - Bonus 1 dozen packets.
Quarter Gross Order Bonus ½ dozen packets.
Quarter Gross is minimum quantity.

NO BONUS ON 60's

CONDITIONS

The conditions are, that upon receipt of each bonus the chemist undertakes to show 'ASPRO' Display matter in his shop window for 14 days, and to sell at advertised prices. Acceptance of bonus is considered as acceptance of these conditions. To qualify for the bonus it is not necessary for the chemist to buy both sizes at the same time, but single lots may be ordered—viz., 6 doz. 10's, or 3 doz. 25's.

As 'ASPRO' is so extensively advertised, this Display will not only bring customers into the chemist's shop to purchase 'ASPRO,' but will enable the chemist to make other sales as well.

HOW TO ORDER BONUS PARCELS

We do not sell direct to the Chemist, all our business going through a Wholesaler. Orders may be sent either to your Wholesaler or direct to us. If to us, state the name of your Wholesaler so that we may forward the order on, and the Bonus will be supplied direct by us.

ORDINARY PRICES for UNSTAMPED 'ASPRO' are as follows:
6d. size containing 10 tablets - 4/6 dozen
1/3 size containing 25 tablets - 11/6 dozen
2/6 size containing 60 tablets - 21/- dozen
Subject to 2½% discount 30 days.
NOTE.— 2/6 size contains 10 extra tablets.

'ASPRO' consists of the purest Acetyl Salicylic Acid that has ever been known to Medical Science, and its claims are based on its superiority.

Agents: GOLLIN & Co. Pty. Ltd. ('Aspro' Dept.), Slough, Bucks.

No proprietary right is claimed in the method of manufacture or the formula. *'Phone: SLOUGH 608*

A FILLIP TO YOUR BUSINESS

Like all other chemists, you must have wished many times that the makers of Malt and Cod Liver Oil would find some means of counteracting its objectionable taste.

"BUTTERSCOTCH" MALT & OIL

has this objection removed. Its pleasing toffee flavour, its purity and excellent quality, is stimulating the sales of every chemist stocking it. It is a building-up food of high vitamin content and is in demand from both children and adults.

"Butterscotch" Malt and Oil is a preparation which sells itself, not once, but again and again. Firstly, because it is a pure health restorative, secondly, because of its palatable flavour, thirdly, because it is a FOOD.

This is a proposition which spells profit for all chemists and druggists. Fill in and post the coupon to-day.

Sole Manufacturers:

C. TOLKIEN & CO., SILSDEN, Yorks.

Telephone: 69 Steeton Telegrams: "Remogen, Phone, Steeton."
LONDON: 14 BOW LANE, CANNON ST., E.C.4. Telephone: 8643 Cent.

Please send samples, labels, terms, and full particulars of your "Butterscotch" Malt and Oil.

To .....

.....

.....

C.D.1.

CLARKE'S BLOOD MIXTURE & OTHER PREPARATIONS

Wholesale Prices.

	SIZES.	PRICE PER DOZEN.
Clarke's Blood Mixture	3/- & 12/-	£1:7:0 & £5:8:0
„ Miraculous Salve	1/3, 3/- & 5/-	11/-, £1:7:0 & £2:4:6
„ Special Aperient Pills ..	1/3, 3/- & 5/-	11/-, £1:7:0 & £2:4:6
„ Patent Skin Lotion ..	1/3	11/-
„ Medicated Soap	1/-	9/-

Orders: Minimum quantity £16 : 4 : 0 value.
FREE CASES. Carriage paid upon orders of £100.

All Wholesale Houses keep a large stock of our Preparations and can supply smaller orders promptly.

Minimum Retail Selling Prices: 1/-, 1/3, 3/-, 5/- & 12/- Face Value, giving a **PROFIT** of 33⅓% on cost to Distributors.

An attractive Showcard and Dummies supplied on application.

Trade Mark: "BLOOD MIXTURE." Regd. No. 3275.

Sole Proprietors:

THE LINCOLN & MIDLAND COUNTIES DRUG CO., LTD.
Park Street, LINCOLN.

LAST 3 DAYS
OF THE
10% BONUS
ON
CASSELL'S TABLETS
LACTOPEPTINE
BEECHAM'S POWDERS

The opportunity given to Chemists and Druggists to participate in the 10% Bonus on the above three products is drawing to a close. Monday next, July 1st, is the last day upon which orders can be received and executed on these terms.

THE BONUS IS IN THE FORM OF AN ADDITIONAL 10% DISCOUNT ON ALL PURCHASES OF THESE THREE PRODUCTS

COMBINED ORDERS: The above bonus offers are only allowed when included in the usual combined £5 or £10 orders for BEECHAM-VENO Preparations, either direct or through your wholesaler.

This Bonus only applies to above mentioned three products.

BEECHAMS PILLS, LTD.

CHESTER ROAD MANCHESTER

Chemists are enthusiastically accepting our new marketing plans . . .

THE day has passed when Chemists will work for nothing and alone.

They realise that each product in their pharmacy must have behind it a definite advertising and sales plan which produces sales volume and satisfactory profits.

Behind our products is a selling plan of considerable interest to all pharmacists.

SOLE DISTRIBUTORS
for the following advertised proprietaries of absolute merit:

Blue Jay Corn Cure Products.

Lysolid—*The safety Lysol in tablet form guaranteed 50% free Cresols.*

"Maybelline" Eyelash Beautifier.

"Ex-Lax" Chocolate Laxative.

Daggett & Ramsdell's Creams.

Luton Hat Dyes—*Auroral Cold Water Dyes, etc.*

"Taky" The French perfumed depilatory.

PENNEY & CO., LTD.

Specialist Distributors of Druggists' Merchandise

179/185 Gt. Portland Street, London, W.1

LINES that Sell all the time !

Some lines sell on first appearance—but only once—and then they are so much dead stock.

Others create an ever-increasing demand—giving complete satisfaction to buyer and seller.

The merits of IGLODINE are now well established, and the public, quick to appreciate their indisputable effectiveness, are insisting on being supplied with Iglodine specialities.

Your Returns will show a marked increase if you meet this demand—our terms permit a profit of 50% to the Retailer.

"IGLODINE" Specialities
(On the P.A.T.A.)

ANTISEPTIC
EMBROCATION
TOILET SOAP
OINTMENT
PASTILLES
THROAT TABLETS
CREAM
SHAVING STICK
NASAL DOUCHE
SUPPOSITORIES
SALICYLATED and
FIRST AID OUTFITS

·Iglodine·
THE ANTISEPTIC

is an all-British, safe antiseptic and pure drug—Tri-Iodo-Ethyl-Phenyl-and is an important factor in commercial welfare. In the performance of their various missions Iglodine preparations are particularly effective.

Showcards and advertising literature gladly sent on application. Write us to-day for details of our Special Window Display offer.

NORTH EAST COAST EXHIBITION
NEWCASTLE-ON-TYNE. MAY to OCTOBER, 1929
We are exhibiting at the above exhibition—our Stand is in the Palace of Industries—Avenue P, No. 371. We shall appreciate the courtesy of a call and shall be glad to welcome any old or new friends. Our Stand is at your disposal.

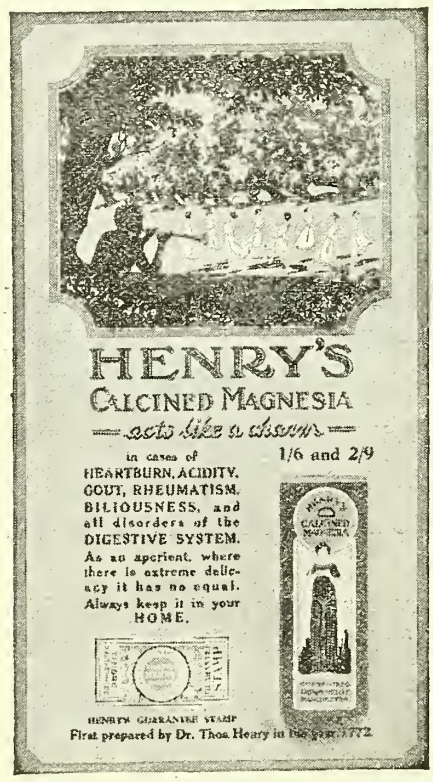
THE IGLODINE CO., LTD.
PILGRIM STREET———NEWCASTLE-ON-TYNE

A very Old Friend
- in a New Guise -

HENRY'S CALCINED MAGNESIA



The New Carton



The New Showcard

THE identity of Henry's Calcined Magnesia has been for some five generations so associated with a certain familiar appearance that a change of packing in conformity with current ideas of selling calls for emphasis from time to time to protect pharmacists, the public, and the genuine preparation.

Special attention is therefore drawn to the above carton so that its appearance may be well noted.

Apart from this merely external change the merits of this well-known and acknowledged remedy are absolutely unaltered, and it remains the only Magnesia guaranteed to be free from Carbonic Acid Gas—points of the utmost importance to the distributor and user.

We will gladly send show-cards and advertising matter on request. Send p.c. for trade terms.

Thos. & Wm. HENRY
Manufacturing Chemists,
11 East St., MANCHESTER

BILE BEANS

(Registered Trade Mark No. 484261)

IN GREATLY-INCREASED DEMAND

Bile Beans announcements in National and local newspapers reach millions of readers, twice a week in many cases. A continuous and solidly built-up demand for this ever-popular family medicine is the result.

REPLENISH YOUR STOCKS

For new and attractive Window Bill and other advertising material write to

Sole Proprietors:—C. E. FULFORD, Ltd., Carlton Hill, LEEDS.



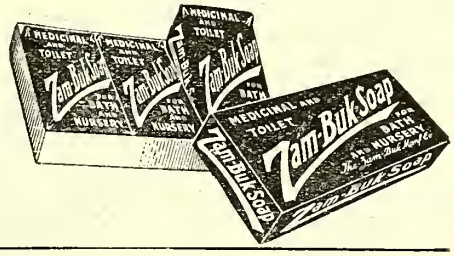
ALWAYS ADVERTISED

Always Selling!

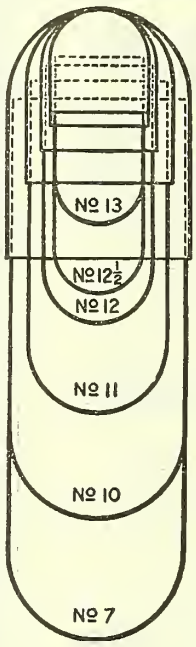
ZAM-BUK is the best of its kind—the most universally sold proprietary ointment in the world to-day. As a first-aid for superficial injuries and remedy for common skin ailments, Zam-Buk has a 25 years' reputation. Send post-card for window-show terms and attractive advertising matter.

Another Attractive & Profitable Line

A big percentage of your regular Zam-Buk customers are certain to ask for Zam-Buk Medicinal Soap, an important aid to the treatment.



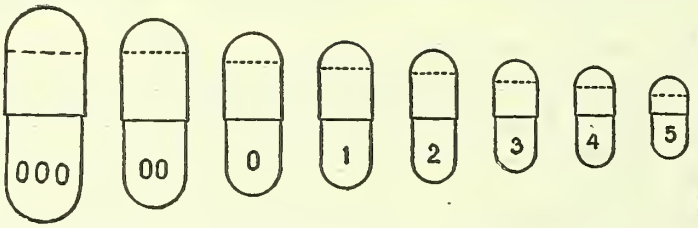
C. E. FULFORD, Ltd., Carlton Hill, LEEDS



Colton EMPTY GELATINE Capsules

MADE ON THE ONLY COMPLETELY AUTOMATIC MACHINE IN THE WORLD, PRODUCING MORE CAPSULES DAILY THAN ANY OTHER MAKER.

RESULTS ARE ENSURED AND QUICKER WHEN THERAPEUTICALLY ACTIVE MEDICAMENTS ARE TAKEN IN OUR CAPSULES, INSTEAD OF IN FORM OF COMPRESSED TABLETS.



HIGHEST QUALITY

ATTRACTIVE PRICE

WE CAN FURNISH ANY QUANTITY PACKED IN BOXES, OR BULK, PROMPTLY.

WRITE TO US—

Supex Ltd., 22 Cork Street, London, W.1



The SAFEST AND BEST DISINFECTANT OF THIS AGE

THE ADVENT OF CROMESSOL exploded the idea that all disinfectants must necessarily be evil-smelling to be effective. Cromessol is so different from all other disinfectants that it immediately appeals to everyone. When its wonderful sprayer emits a perfect vapour cloud delicately perfumed one can hardly realise that behind that charming aroma there lurks an all-powerful disinfectant. Yet here are the facts:—Cromessol is six-and-a-half times stronger than Carbolic Acid. It instantly destroys all germs and parasitic insects, and is indispensable when 'Flu or similar epidemics threaten. It is safe and pleasant to use, and will not stain nor soil even the most delicate fabrics. It is undoubtedly the safest and best disinfectant of this age.

ARE YOU SELLING CROMESSOL? If not, may we send you complete particulars and Trade Terms? Cromessol is a sound selling proposition with a liberal margin of profit.

SEE OUR EXHIBIT
STAND 108 A
AVENUE D
NORTH-EAST COAST
EXHIBITION, NEWCASTLE

CROMESSOL

Complete particulars & Trade Terms from the Sole Manufacturers:
THE CROMESSOL CO.
148 BRAND STREET, IBROX, GLASGOW

A BRITISH PRODUCTION

PETROLEUM JELLY

"SALVO PETROLIA"
BRAND

The Perfection of Petroleum Jelly

Manufactured solely by

THE DEE OIL CO. LTD.

D 23 & 24 Exchange Buildings
Liverpool

AT THEIR DELTA WORKS, BOOTLE, LANCASHIRE, ENGLAND.
Telephone : Central 3859. Telegrams : "Cestrian, Liverpool."
London Office: **11 Poultry, Cheapside.**
Telephone : City 8455.

PACKED IN BARRELS OR IN KEGS OR SMALLER PACKAGES IF DESIRED

Write also for Samples and Prices of

Petroleum Jellies, White Bases, &c.
White Oils, B.P., & Technical Qualities

OLEUM DEELINÆ (DEE OIL)
The Unfailing Cure for Eczema

Discovered 1829

FAMOUS FOR A CENTURY

Unrivalled 1929

SANTONIN

The truest Specific known to Medical Science.

For the convenience of chemists we pack Santonin in a complete range of doses for dogs, to be retailed at uniform prices as follows:

6×½ grain packets - - 1/- For small toy dogs, 3-5lbs. adult weight	6×3 grain packets - - 3/- For small medium dogs, 20-25lbs. adult weight
6×1 grain packets - - 1/6 For large toy dogs, 6-8lbs. adult weight	6×4 grain packets - - 4/- For large medium dogs, 30-40lbs. adult weight
6×2 grain packets - - 2/3 For small dogs, 10-14lbs. adult weight	6×5 grain packets - - 4/9 For large dogs over 45lbs. adult weight

These prices include a profit of 33⅓ % for Chemists.

Order from your usual wholesaler, and write to us for:—

(1) FREE supply of our well-illustrated book, "THE WORMS OF THE DOG," for distribution to your customers.

(2) An artistic showcard in five colours, to link you up with our extensive advertising campaign.

RUSSIAN DRUGS

We quote favourable prices for:—

ANISEED	CANTHARIDES
CORIANDER SEEDS	ELDERBERRIES
CORIANDER OIL	FRANGULA BARK
ERGOT of RYE	HENBANE
LIQUORICE ROOT	PINE NEEDLE OIL
LYCOPODIUM	etc., etc.

Spot and forward deliveries.

ARCOS, LTD. 33/35 KING WILLIAM ST., LONDON, E.C.3

Sole British Agents for Russian products.

To Introduce ANACIN* The New Anodyne

ANACIN is new to the British market. The huge success of Anacin in other countries may be judged by the fact that over 3,000 Dentists and almost as many Doctors in Canada alone are prescribing and dispensing Anacin regularly.

ANACIN contains no narcotic, no habit-forming drug. Evidence of the pure character of the drugs employed in the manufacture of Anacin is shown by the absence of odour when the tablet is dissolved in water. The tablet disintegrates in 30 to 40 seconds, thereby demonstrating the rapidity with which the drugs disintegrate after being introduced into the stomach.

ANACIN contains para-acetphenetidin, acetysalicylic acid, cafein alkaloid and quinine sulphate.

We will be pleased to send you free a tin of 12 Anacins, together with trade terms and full particulars. Write to:—

C.C. Ertz, Agent for the ANACIN Co. (of Canada) Ltd., 23, Eagle Street, High Holborn, W.C. 1.

**Anacin is a combination of synergistic drugs which produce the maximum therapeutic effects without any gastric disturbances or depressing after-effects. Anacin contains no narcotic, no habit-forming drug.*

ANACIN



THOS. HODGKINSON, PRESTONS & KING

Wholesale and Export Druggists and Manufacturers of Pharmaceutical Preparations.

PACKED GOODS A SPECIALITY

WRITE FOR PARTICULARS OF :: BONUS SCHEME ::

STANDARDISED TINCTURES
AND
LIQUID EXTRACTS, GREEN EXTRACTS (New)
EXTRACT HENBANE BIEN,
EXTRACT BELLADONNA, Etc.

Preston's ANTI-STING COMPLEXION CREAM

THIS LINE WILL BRING MANY REPEAT ORDERS
Sent out one dozen show outers with counter pamphlets. 4/6 doz.—sells at 9d.

All Preparations and Galenicals are made in our own Laboratories UNDER DIRECT PERSONAL SUPERVISION

262 Bishopsgate, London, E.C.2

Telegrams: "Kraals, Norton, London." *Telephone: Bishopsgate 1327-28.*



MOHAWK BRAND OIL PEPPERMINT

Magnus, Mabee & Reynard, Inc.

32 Cliff St. & 257 Pearl St.
Connecting Buildings,
NEW YORK CITY, U.S.A.

ESSENTIAL OILS BALSAMS OLEORESINS

OILS :

Amyris Balsamifera
Birch Oil, Sweet
Camphor Oil, Sassafrassy odour
Cedarleaf Oil
Cedarwood Oil
Linaloe Wood Oil, Mexican
Nutmeg Oil
Pennyroyal Oil
Peppermint Oil, Mohawk Brand
Natural and redistilled
Sassafras Natural, U.S.P.
Spearmint Oil, U.S.P., Mohawk Brand
Wormwood Oil, U.S.P.
Wormwood

BALSAMS :

Canada
Copaiba U.S.P.
Peru, gen. natural
Tolu

INFUSED OILS :

Burdock
Henbane
Stramonium
Lobelia
Senega

M. M. & R. Brand: THE HALL-MARK of Quality.

Special Flavours for all Trades.

ENQUIRIES INVITED FOR SPOT DELIVERY AND FORWARD SHIPMENT.

Sole Representatives for England, Irish Free State, &c.

The Old Strand Chemical & Drug Co., Ltd.

41 GREAT TOWER STREET, E.C.

MAGNUS, MABEE & REYNARD, INC. NEW YORK U.S.A.

H H

The Old Strand Chemical & Drug Co., Ltd.

Telephone: ROYAL 8737 (2 lines).
Telegrams:
"OLSTRANKEM, PHONE, LONDON."
Cables: "OLSTRANKEM, LONDON."
Codes: A B C, Western Union, Marconi, Bentley, and Private.

41. Great Tower Street, LONDON. E.C. 3.

TOSCAT
REG^D TRADE MARK

Direct Importers from the primary markets

CRUDE DRUGS, BOTANICALS, ESSENTIAL OILS

RARE DRUGS A SPECIALITY

FIRST HAND FOR ALL FINE CHEMICALS & ALKALOIDS

Spot stocks include :—

ADEPS LANÆ
ARECA NUTS
BAEL FRUIT
BELLADONNA LEAVES
BELLADONNA ROOT
CANTHARIDES, Russian
CARDAMOM SEEDS
CASCARILLA BARK AND SIFTINGS
CHIRETTA
COLCHICUM CORMS
GOLDEN SEAL ROOT
INSECT FLOWERS, all grades
IPECAC. ROOT, Rio.
JAMBUL SEEDS
LYCOPODIUM, Treble Sifted
SAFFRON, Genuine Valencian
STRAMONIUM LEAVES, Hungarian
SUNDEW HERB

All American Botanicals & Crude Drugs—Spot and Forward.

FINE CHEMICALS AND ALKALOIDS

FOR HOME TRADE AND EXPORT

ACID ACETO SALICYL
ACID DIETHYL BARBITURIC
ACID PHENYL-ETHYL BARBITURIC
AMIDOPYRIN
CAFFEIN (PUR.)
CODEINE, PURE AND SALTS
EPHEDRIN, PURE AND SALTS
PHENOLPHTHALEIN, Etc., Etc.

Genuine English Peppermint Oil, Guaranteed Pure and Genuine.
Essential Oils, American, See previous page, Magnus Mabee & Reynard's advertisement.
Essential Oils, Continental origin.
Chamomile, Coriander, Juniper Berry, Sage, Otto of Rose.

TONQUIN MUSK PODS
COUMARIN HELIOTROPIN, VANILLIN
SANTONINE, answering the requirements of all Pharmacopœias.

LET US HAVE YOUR ENQUIRIES.

Cable Address :
OLSTRANKEM PHONE
LONDON.
Telephone : ROYAL 8737.

J.D. RIEDEL A.G. BERLIN

Codes :
A.B.C. 4th & 5th Ed.
Bentley. Marconi.
Private.

CHLORAL HYDRATE PEARL CRYSTALS
Spot Stocks London or f.o.b. Continental Port

PARIS GREEN 55/58%
In Bulk Containers or Smaller Packings. Spot London or c.i.f. any Port

LECITHIN EX OVO
LECITHIN EX PLANTS
Suitable for all purposes in which Lecithin is indicated required.

PEPTONE BACTERIOLOGICAL
SOLE CONCESSIONAIRES : Chemically pure.
THE OLD STRAND CHEMICAL & DRUG CO., LTD.,
41, Great Tower Street, London, E.C.3.

QUALITY UNSURPASSED

FINEST NON-FREEZING NORWEGIAN COD LIVER OIL

STANGUS BRAND

CONSTANT HIGH VITAMINE CONTENT
(the result of the latest improvements in Cod Liver Oil Refining).

DOCK SAMPLES AVAILABLE.

SPOT STOCKS in LONDON, LIVERPOOL & BRUSSELS.
C.I.F. QUOTATIONS any MAIN PORT for prompt or forward shipment.

HARALD STANGE & CO., A/S. OSLO

Sole Concessionaires BRITISH EMPIRE :
THE OLD STRAND CHEMICAL & DRUG CO., LTD.
41 Great Tower Street
LONDON, E.C.3.

BELGIUM & COLONIES
L. TCHERNIAK
6 Rue Alsace Lorraine
BRUSSELS



HOME MADE BEER

FROM

MASON'S EXTRACT OF HERBS

THE NATIONAL BEVERAGE **SELLS FREELY EVERYWHERE**

ATTRACTIVE DISPLAY CARDS. WINDOW SHOW ALLOWANCE WITH OPENING ORDER.

Apply for terms to

NEWBALL & MASON, Ltd., NOTTINGHAM



Saint-Raphael

Tonic, Restorative, Digestive Wine.

Known throughout the World, and prescribed in all cases of ANÆMIA, DEBILITY, and CONVALESCENCE, to Young Women, Children and the Aged.

DOSE: One wine-glass after the two principal meals.

Recommended by—
PROF. BOUCHARDAT, Professor of Hygiene, Paris Faculty of Medicine.
DR. MACNAUGHTON JONES, London, England.

"For more than thirty years St. Raphaël Wine has been exclusively prescribed, with success, in the Paris hospitals as a pure tonic, by eminent physicians, such as Mageudie Ros on Chomel, Velpeau, Requin, Monueret, Trousseau, Grisolle, Laënnec, &c."—*Union Medicale*, May 8 and June 12, 1873.

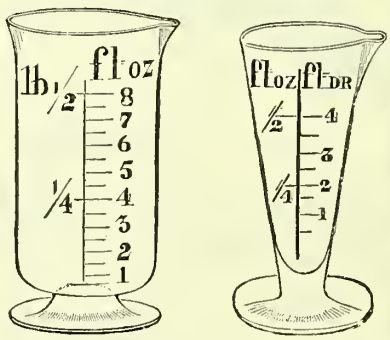
"The 'Vin de St. Raphaël' is often used for ladies nursing their own children; it is preferable to stout, which creates an unhealthy fat."—*The Lancet*, London, England.

"St. Raphaël Wine is most precious in all cases where it is necessary to give tone to the system, without effort or shock."—DR. C. DES BARRES.

Cie du VIN SAINT RAPHAEL, Valence, Drome, FRANCE.

To be obtained from all Wholesale Druggists.

TAYLOR'S



MEASURES

OVER 50 YEARS REPUTATION
F. H. TAYLOR & SONS LTD
131 SEVEN SISTERS ROAD, LONDON, N.7
(WHOLESALE ONLY)

CHEMISTS' TRANSFERS

Messrs. **ORRIDGE & Co.**

56 LUDGATE HILL, E.C.4

TELEPHONE: CITY 2283. (ESTAB. 1846.)

May be consulted at the above address on
SALES, PURCHASES & VALUATIONS

VENDORS

Vendors have the advantage of direct attention and advice as to value without additional fee.

PURCHASERS

Purchasers who desire early information regarding eligible opportunities for entering business will greatly facilitate their object by describing clearly the class of connection they wish to obtain.

VALUATIONS

Valuations having always been a prominent feature, Messrs. Orridge and Co. trust that the lengthened period during which they have enjoyed the confidence of the Profession will be regarded as sufficient proof of their endeavours to conduct these transactions in an honourable and straightforward manner.

VALUATIONS FOR STOCKTAKING

Messrs. Orridge & Co. desire to emphasize the necessity of a periodical Statement of Account, by which means alone *Profit, the Value of Business, etc.*, can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted, and eventually becomes the cause of *confusion and loss.*

Messrs. Orridge & Co. are prepared to undertake these essential duties, and will make *Special Terms* for such services.

N.B.—NO CHARGE TO PURCHASERS

Terms for Valuation on application. Appointments by post, wire, or telephone have immediate attention.

SPECIAL NOTICE. Messrs. ORRIDGE & CO. have usually a large number of Businesses for Sale suitable for Gentlemen with capital, from £500 to £5,000.

ORRIDGE & CO., 56 Ludgate Hill, E.C.4

MATTE Real
(South American Tea)

The sale of Matte Real is an extra sale, not a substitute sale, therefore the profit is an actual one.
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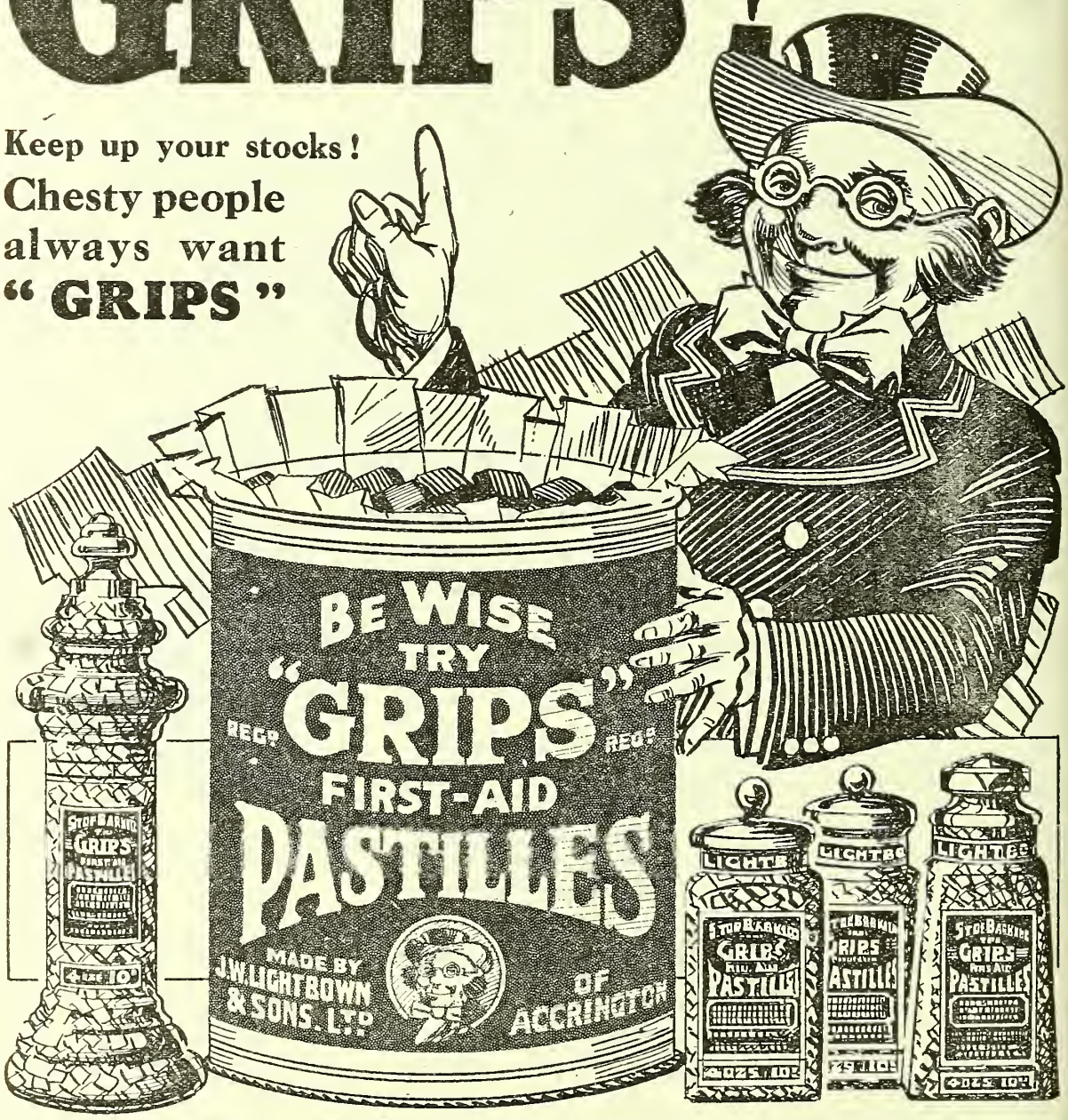
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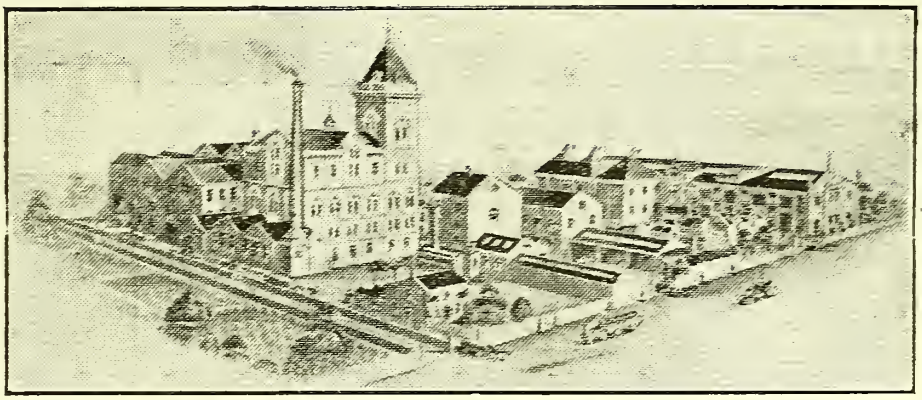
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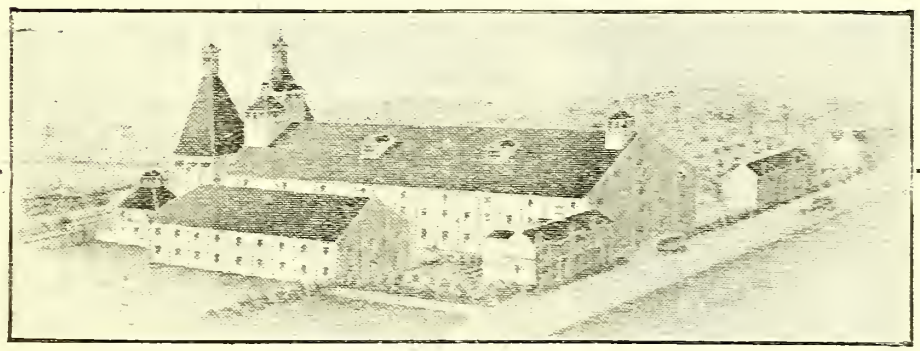
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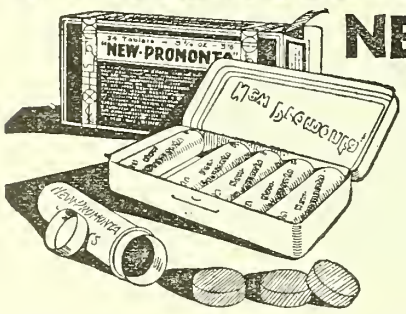
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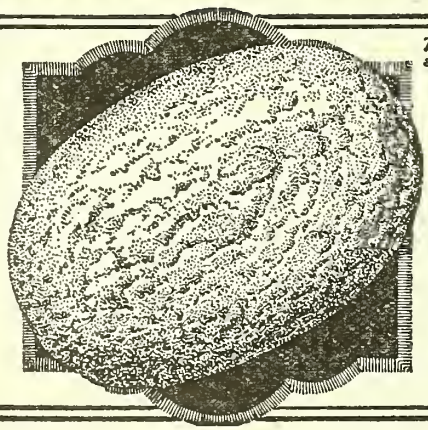
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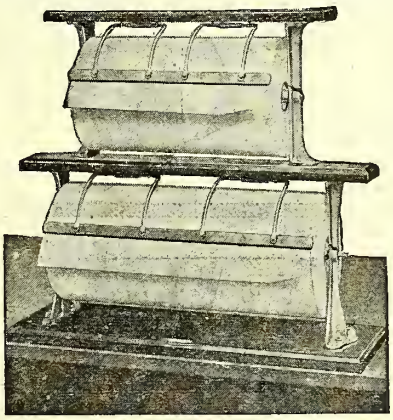


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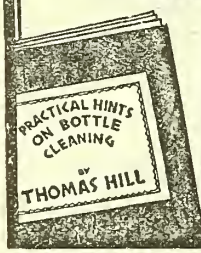
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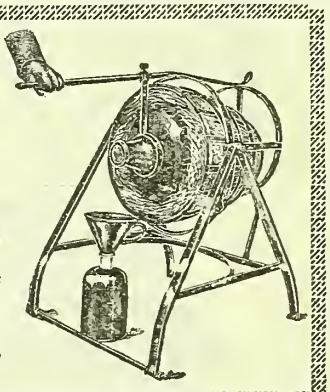


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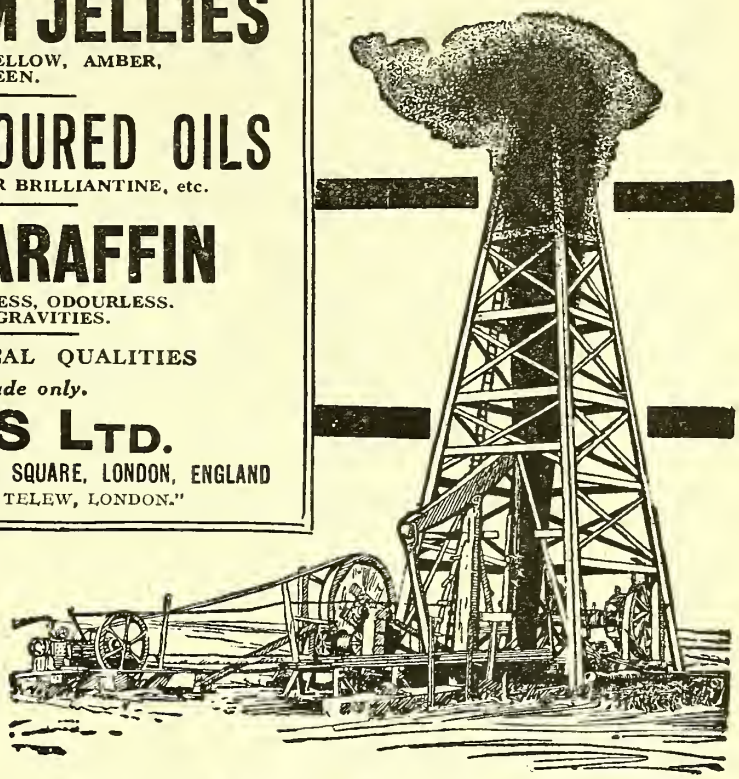
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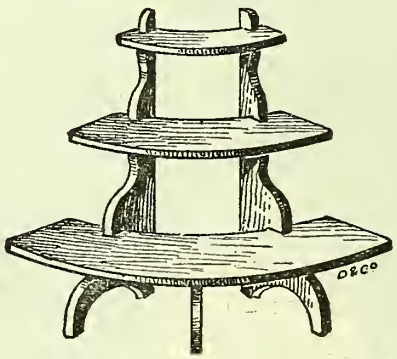
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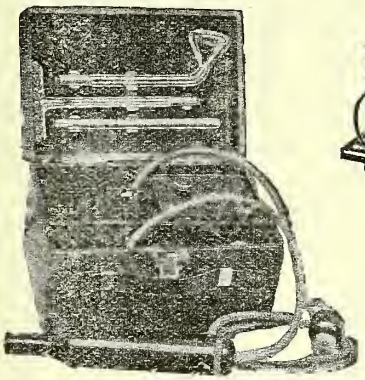
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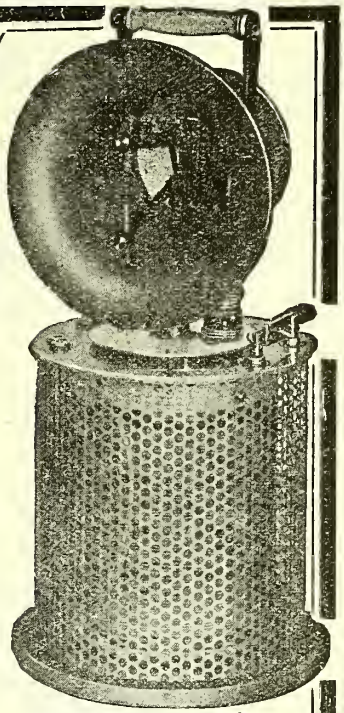
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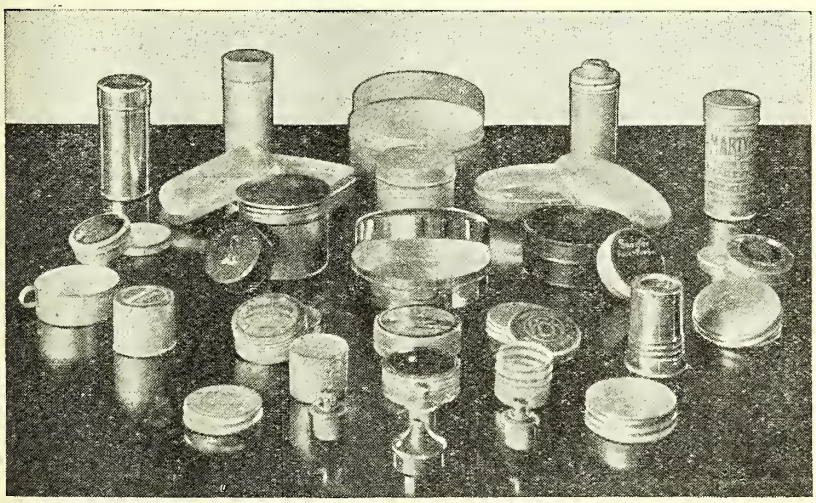


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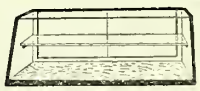
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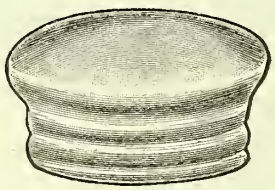
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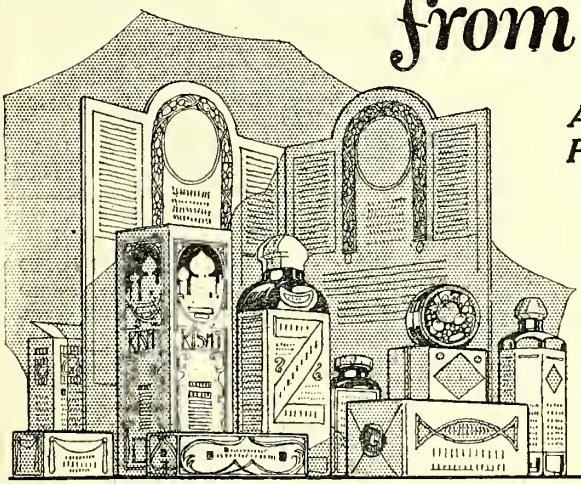
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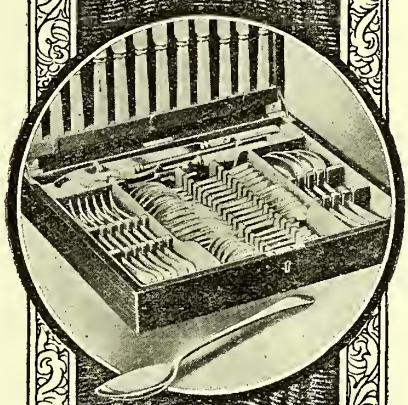
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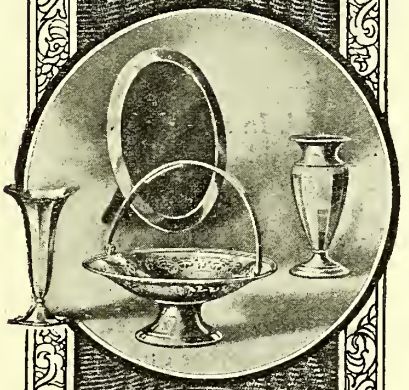


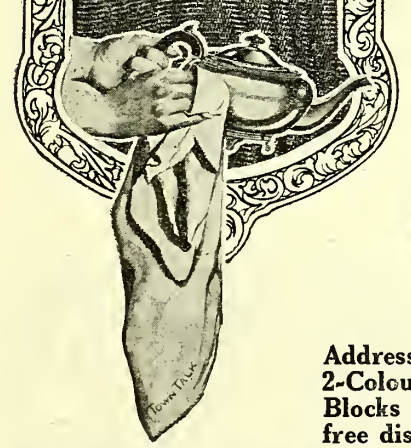
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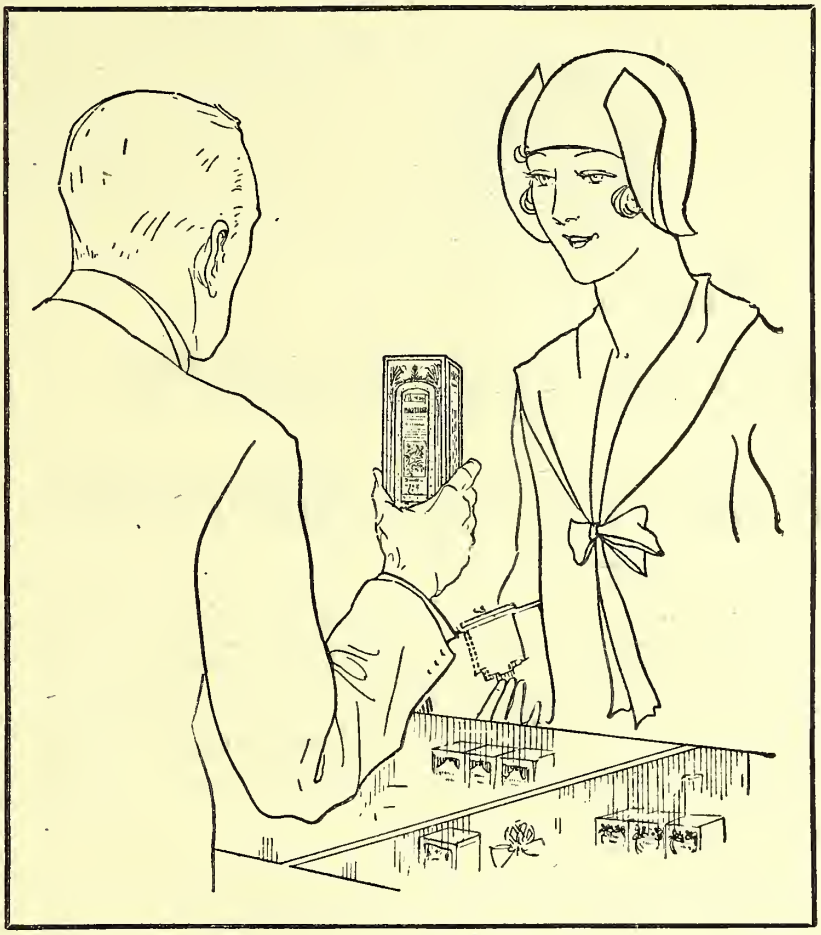
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Annual Special Issue June 29, 1929



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Coming Events

This section is reserved for advance notices of meetings or other events. These should be received by Wednesday of the week before the meetings, etc., occur.

Sunday, June 30

Cardiff Chemists' Golf Club, Pyle and Kenfig course. Third open meeting with competitions for the Newbery Challenge Cup and the Torry Cup.

Wednesday, July 3

Leeds Chemists' Golf Club, Wetherby course. Meeting with the Yorkshire golfers. Ladies are invited.

Thursday, July 4

London Chemists' Golfing Society, Hartsbourne Manor course.

East Anglian Federation of Pharmacists and Group Executive R.P.U., Savoy Hotel, Great Yarmouth, at 3.30 p.m. Quarterly meeting. Followed at 6.30 p.m. by a light dinner. Tickets 5s. each. Address by Mr. H. H. Marshall.

THE ANNUAL INTER-ASSOCIATION SPORTS of the London associations will be held on Thursday, July 11, at Maw's Sports Ground, New Barnet, commencing at 2.45 p.m. (The ladies' singles cup competition will take place on Wednesday, July 10.)

Summary of this Issue

Mentioning some of the more notable items

Colour Plates.

Insets in colour will be found in this issue facing pages 795 and 802. One of the two reproduces two pages from a thirteenth-century French translation from Roger of Salerno, now in the British Museum, and depicts an apothecary's shop together with several operations and biblical scenes. The second inset, derived from a manuscript in the Bibliotheca Cassanalense in Rome, comprises illustrations of medical and surgical practice of about the year 1250.

Articles and Communications

The soya bean industry is fully described from a commercial standpoint in an illustrated article on pages 839-842.

The mills of Vernon & Co., Ltd., manufacturers of surgical dressings, are described and illustrated in an article commencing on page 834.

The city of Dublin is described with particular reference to its pharmaceutical and medical history, with several illustrations. (Pages 808-815.)

Mr. Herbert Skinner discusses the problem of making solid spirituous preparations, and indicates methods of overcoming the difficulties. (Page 775.)

Mr. E. M. Holmes contributes a transcript of a seventeenth-century prescription with annotations on the drugs and preparations used. (Pages 782 and 783.)

Mr. W. A. Poucher contributes a study of the jasmine perfume industry, with practical hints for blending and manufacturing perfumery. (Pages 778-781.)

The massive headquarters of Imperial Chemical Industries, designed by Sir Frank Baines, is described and illustrated in a special article. (Pages 776 and 777.)

The history of weights and measures from the earliest known times is set forth in a well-illustrated article dealing with the usuages of several countries. (Pages 816-833.)

Dr. Giovanni Carbonelli, of Rome, contributes an illustrated "Note" on a small private pharmacy of the sixteenth century, once owned by Pope Alexander VII and still in the possession of his family. (Pages 805 and 806.)

Dr. Charles Singer, of the University of London, continues the sketches of the history of English medicine, which attracted so much attention in our Special Issue of last year, and deals particularly with the thirteenth and fourteenth centuries. (Pages 795-804.)

The illustrations in this issue are, as usual, numerous. Special mention may be made of the unique illustrations in photogravure to be found in Dr. Singer's article, to a page of Venetian seventeenth-century pharmacy signs, to those in the article on weights and measures, and to those illustrating our account of Dublin.

The Week's News

The result of the voting in the Pharmaceutical Society's North British Executive election appears on page 772.

The chief alterations in the markets include an advance in Bombay cannabis indica, a reduction in lactic acid, formaldehyde and caustic potash. Barbitone and sodium diethylbarbiturate are expected to advance (page 844).

K K

English and Welsh News

The Editor will be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

Birmingham

Many local pharmacists are taking advantage of the excellent weather to secure holidays while it lasts.

The William Withering memorial lectures at Birmingham University are being delivered this year by Dr. Charles Singer.

Liverpool

Dr. J. S. Buck, professor of chemistry at Duke University, U.S.A., is about to visit his home in Wallasey, prior to taking up an appointment at Burroughs Welleome & Co.'s new experimental research laboratory, which is to be opened in September in the States.

A party of sixty pharmacists left Liverpool on June 22 by the Dublin night boat *en route* for the Conference. The voyagers included Messrs. Moreton Parry (president of the Pharmaceutical Society), H. Humphreys Jones (principal of the Liverpool School of Pharmacy), Martin S. Hughes and Thomas Hardy. Mr. J. G. Wallbridge (president of the Liverpool Chemists' Association) and some others chose the shorter sea route via Holyhead.

Miscellaneous

PARLIAMENT met for the formal business of swearing in members on June 25.

CAMBRIDGE BOTANIC GARDEN.—The syndicate appointed in January to consider the organisation of the Cambridge Botanic Garden has submitted a report to the University, making several recommendations, the effect of which, if carried out, will be that the Garden will become a part of the Department of Botany. The creation of a new University lectureship for teaching systematic botany is also suggested.

FALSE PRETENCES. — At Stockton Police Court, on June 19, Thomas L. Dillon (29), Craggs Street, pleaded "Guilty" to four charges of obtaining money by false pretences. It was stated that the accused defrauded people by representing that he was travelling for T. L. Dillon & Co., manufacturers of a commodity for mixing with live-stock food. He induced a few people to become agents. The stuff was analysed and found to be common salt slightly discoloured. Other cases were taken into consideration, and the accused was sentenced to six months' hard labour.

UNLABELLED DISINFECTANTS. — At Clitheroe Police Court, on June 17, Walter Briggs, postmaster, Downham, was summoned for selling a bottle of disinfectant without having his name and address printed thereon. The case was dismissed on payment of costs. Superintendent Pagett asked for costs, stating that 2s. had been expended in purchasing the preparation. A Magistrate: Sell it back to the defendant. (Laughter.) The Clerk: But be careful to put your name on the bottle. (Laughter.)—At Blackburn, on June 18, Mary L. Boothman, Larkhill, and James Gillibrand, Whalley New Road, described as druggists, were each ordered to pay costs for selling a liquid preparation containing not more than 3 per cent. of phenol in a bottle not distinctly labelled with their names and addresses.

CLOSING ORDER PROPOSED.—Ipswich Town Council proposes to make an Order under the Shops Act fixing the hours for retailing medicines and medical and surgical appliances by pharmacists. It is proposed that the weekly half-holiday shall be on Wednesdays, when shops will close at 1 p.m., but may open between 6 and 7.30 p.m. for the sale of medicines or medical and surgical appliances. It is also proposed that any occupier wishing to do so may, on giving notice, substitute Saturday for Wednesday as the weekly half-holiday. For the other days of the week, shops will close at 7.30 p.m. on Mondays, Tuesdays and Thursdays; 8 p.m. on Fridays; and 8.30 p.m. on Saturdays. Any objections to the draft order must be addressed to the town clerk before July 23.

Scottish News

North British Executive

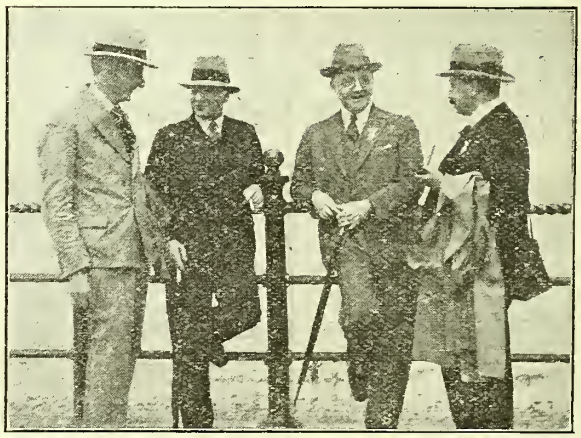
There were 1,593 voting papers issued in connection with this year's election of the North British Executive of the Pharmaceutical Society; 436 of these were returned and 28 were informal, thus leaving 408 valid papers. The following was the result of the poll:—

McVitae	316	Milne	245
McNab	315	Robertson	242
McMillan	314	Currie	241
Arthur	308	Mackenzie, D. G.	221
Simpson	303		
Coull	234	*Carmichael*	214
Mackenzie, T.	275	*McCall*	192
Forbes	274	*Weir*	172
Bennett	273	*Heddle*	158
Harley	273	*Black*	153
Stewart	267	*Brown*	125
Duff	260	*Short*	124
Culbert	252	*Thomas*	103

The chairman declared the first seventeen to be the elected members, together with the president of the Society (Mr. L. Moreton Parry), the vice-president (Mr. A. R. Melhuish), and Messrs. T. Guthrie and J. Jack as *ex-officio* members.

Irish News

Dublin



Photo] [*Cleworth*

EARLY ARRIVALS AT THE DUBLIN CONFERENCE

Left to right: Mr. J. G. Twigg, Dr. F. W. Crossley Holland, Dr. C. H. Hampshire, Mr. J. Oliver

As indicated in the article on Dublin businesses in our issue of June 8, we had not space then available to deal with several of the wholesale houses of the city. Among these are A. de St. Dalmas & Co., Ltd., who have extensive premises in Middle Abbey Street, within a few seconds' walk from the old General Post Office and the Nelson column in O'Connell Street. Besides medical plasters and dressings they carry a wide range of druggists' sundries, patent medicines, packed goods and drugs, and, in fact, are regarded as one of the leading general supply houses for the Irish drug trade. The company also act as agents and distributors for several manufacturers of international reputation. The growth of St. Dalmas & Co.'s Irish business has been rapid. It is only in recent years that they have been domiciled in Dublin. First a showroom and office were opened in Nassau Street. This was followed by a warehouse in Parnell Square, where for the first time stocks were carried. The convenience was so appreciated that accommodation soon proved quite inadequate, and larger premises were acquired in Middle Abbey Street. The branch is under the management of Mr. H. N. Bream, Ph.C., and the company's representative, Mr. H. G. Grantham, is known to chemists throughout the country.

Pharmaceutical Society
of Northern Ireland

THE monthly meeting of the Council of the Pharmaceutical Society of Northern Ireland was held on June 21 in the Society's Rooms, Belfast, the president (Mr. W. J. Hardy) in the chair. There were present also Messrs. Fred Storey (vice-president), H. Todd, James Dundee, Samuel Gibson, R. I. Edwards, S. S. Badger, John Maxwell, W. Martin, W. S. Taylor, J. E. Connor, J. F. Grimes, H. McRoberts, Dr. Fielden and Dr. Acheson. Mr. D. L. Kirkpatrick (secretary) was in attendance. Apologies for absence were read from Professor Small, Mr. A. C. McBride, Mr. H. Lancashire and Mr. W. E. Wilson.

DEATH

Before proceeding with the business, the PRESIDENT said he wished to refer to a very sad event which had taken place during the week, the death of their old friend and former colleague, Mr. Joseph Moffett. When he heard the news in London it came as a great shock to him, because he had only heard of his illness last Sunday from Mr. Storey. Mr. Moffett was one of the Government's appointed representatives of the druggists on the Council for two years, and he served the Council well. He took a great interest in the proceedings and worked hard, especially during the first two trying years of its existence. He could safely say no man had served the trade with more single-hearted purpose than Mr. Moffett. He moved that a letter of condolence be sent to Mrs. Moffett and family.

Mr. STOREY, in seconding, said that he had been a close personal friend of Mr. Moffett for many years, and the news of his death came to him as a great blow. Mr. Moffett had worked with him in the Chemists' and Druggists' Society for many years, and it was a great comfort to them to know that they had been able in some way to show Mrs. Moffett what they thought of him and his work by making him a presentation three weeks ago. He would be greatly missed by the trade.

Mr. TODD supported the motion, observing that Mr. Moffett was respected by the entire trade.

Mr. CONNOR also spoke, and the resolution was passed, the members standing.

CONGRATULATIONS TO SIR THOMAS MCMULLAN

The PRESIDENT referred to the honour of knighthood conferred on Sir Thomas McMullan, a member of the Council. That was more or less a reflected honour on the trade. He was quite sure no honour for public service in recent times had given more satisfaction. He wished to congratulate him on behalf of the Council.

Mr. STOREY said that everyone was delighted with the honour conferred on Mr. McMullan.

SALE OF TUBERCULIN

The following letter was read from the secretary of the North of Ireland Veterinary Medical Association :—

At a meeting of the North of Ireland Veterinary Medical Association, held on May 19. 1929, at Belfast, the following resolution was proposed and passed unanimously: "That the North of Ireland Veterinary Medical Association views with alarm the great increase in the indiscriminate use of tuberculin by unqualified persons. The Association, therefore, desires to draw the attention of the Pharmaceutical Society of Northern Ireland to the grave danger to the public health which exists in the unrestricted sale of tuberculin. Further, the Association would heartily welcome the powerful assistance of the Pharmaceutical Society of Northern Ireland, and would gladly co-operate with that Society to further any measure which would have for its object the placing of the sale of tuberculin upon a legalised basis with a view to removing the undoubted abuses which at present exist by the use of the product in the hands of unscrupulous persons."

The PRESIDENT said that tuberculin did not fall under any restricted legislation, so far as he knew. It would have to be dealt with by a special Order in Council.

Mr. CONNOR said he was informed that the profession of chemist was getting less and less. All that was left to them was poisons. He thought they should co-operate with the Veterinary Association in the matter.

The SECRETARY said he had been in touch with the chief Veterinary Officer of the Department of Agriculture.

The matter was referred to the Law Committee.

SIR DAWSON BATES THANKED

The Minister of Home Affairs (Sir Dawson Bates) wrote replying to the Society's letter of thanks (*C. & D.*, May 25, p. 628) : ". . . It is only a pleasure to me to be able to do anything to help on your Society, as I have always taken the greatest possible interest in their work, as I felt that I was to a large extent responsible for the formation of a separate Society in Northern Ireland. . . ."

EDUCATION COMMITTEE

The Education Committee reported having declined to accept one candidate for the examination, as his apprenticeship was not in order.

The PRESIDENT said that the boy's employer and the candidate had made declaration that he had served three years, whereas it was found he was eight months short.

The SECRETARY said that the employer pleaded ignorance of the regulations and had sent an apology.

It was decided to send a strong reprimand to the chemist, and to approve of the action of the Committee.

The Education Committee recommended that certificates of apprentice to a pharmaceutical chemist be granted to the following, who submitted certificates from other bodies : Robert John Frederick Saunderson, 49 Carson Street, Larne; John Beamish Mansfield, Enniskillen; William James Moore, Bellury, Garvagh; Wilfred Finlay Black, Gloonan, Ahoghill; Joseph George Whitten Robb, 38 Gainsborough Drive, Belfast.

A letter was received from the secretary of the Academic Council of the Queen's University, Belfast, stating that the University has no control over the conduct of the examinations, a pass in which it recognises as equivalent to a pass in the Pharmaceutical Preliminary examination, and it is to be assumed that students who fail in any of these examinations are not up to the proper standard. It was resolved that students must complete their examination in the institution where first entered, or, failing that, to sit for all five subjects of the Pharmaceutical Preliminary examination.

A letter was read from Mr. H. E. Malone, of Calgary, stating that he holds the certificate of Pharmaceutical Chemist of the Alberta Pharmacy Board, and asking if it would be recognised by this Society. It was resolved that as the Alberta Board accept this Society's certificates, Mr. Malone be accepted for registration in Northern Ireland, provided he conforms to the agreement.

MEDICAL BENEFITS

The subject of medical benefits was introduced by Dr. ACHESON, who said that now that the Prime Minister had intimated the Government's intention of applying them to Northern Ireland, it would be necessary for the Council to appoint a Watch Committee to confer with the Government when they presented the Bill. The Committee would require to be in constant touch with the Society in Great Britain and see exactly how things were worked. He thought they might take it the Bill would be introduced soon, because trade societies, insurance societies and the medical profession were all taking action. The Committee should be a strong one so that their rights should be safeguarded.

The PRESIDENT said he had a conversation with Mr. Skinner and other officials on the subject, and he obtained a great deal of information. He hoped that the matter would be left to the official body. It was most important for their licentiates, specially those in working-class districts. He observed that medical benefits had been turned down before by the medical profession. What would its attitude be this time?

Dr. ACHENSON said he thought it was possible the Act would only apply to industrial areas at present, and that agricultural labourers might be exempt.

It was agreed to appoint a committee consisting of Messrs. Todd, Connor, Badger, Gibson, Dundee and Edwards, together with the president and vice-president, with power to add to their number. The report was adopted.

Colonial and Foreign News

A British Empire Trade Fair in the Argentine.—Plans are in hand under the auspices of the British Chamber of Commerce in the Argentine Republic for the holding of a British Empire Trade Fair in Buenos Aires from November 1930 to February 1931. The exhibition will include a section for pharmaceutical preparations and surgical instruments.

Swiss pharmaceutical chemical exports.—The Swiss pharmaceutical industry reports that foreign competition is forcing local pharmaceutical companies to operate on a small margin of profit, whereas the dye companies have been able to declare substantial dividends. The pharmaceutical plants have, nevertheless, been able to maintain their output and volume of sales. Swiss exports of pharmaceuticals for the first eleven months of 1928 were valued at 44,147,000 francs, against 44,832,000 francs for the first eleven months of the previous year.

Luxury tax on soaps in Hungary.—The Ministry of Finance and the Ministry of Commerce have arrived at the following decision, which comes into immediate operation: All toilet soap manufactured in Hungary or imported from abroad, whether coloured, perfumed or not; antiseptic soap with a base of coconut oil, almond or glycerin, under whatever form or packing, irrespective of the soap content, must pay a luxury tax of 13 per cent. Washing soap not perfumed, as well as shaving soap perfumed or not, soap powder not perfumed and soap leaves are not subject to the tax.

Medicines and Soaps in British Honduras.—In proportion to the population, the demand for medicines in British Honduras appears to be very high, amounting as it does to a sum of about $1.40 per head per annum, compared with 20 cents in Guatemala. Quinine is in demand as a specific for malaria, and a number of more popular proprietary medicines of United States and British origin are seen in all drug stores. Canadian firms also have a substantial share of this latter trade, which depends for its success largely on effective advertising. The trade in soap is shared principally by the United States and Great Britain. The greatest sale is of the ordinary laundry and toilet varieties, perfumed and medicated soaps being in small demand. Perfumery is another item in which the demand appears to be out of all proportion to the population, amounting as it does to about 70 cents per head per annum.

The late Dr. Nagayoshi Nagai.—The death is announced at Tokyo of the Honourable Nagayoshi Nagai, doctor of pharmacy and science, president of the Japan Pharmaceutical Society, recipient of the Shosanmi and the Order of the Sacred Treasure (third class), on February 10, in his eighty-fifth year. Dr. Nagai will be remembered on account of his isolation of an alkaloid from *Ephedra vulgaris* Rich. var. *helvetica*, which was first mentioned as far back as 1887, and to which the name ephedrine was given by its discoverer. When the modern Japanese government was established, Nagai was sent abroad to study, and from 1870 to 1877 he was at the University of Berlin, and later (1881-84) was assistant to Dr. A. W. v. Hofmann. On his return to Japan he became director of the Dai Nippon Seiyaka Kabushiki Kaisha. He became professor of chemistry and pharmacology in the pharmaceutical department of the Imperial University of Tokyo, and held the chair for thirty-two years until 1921, when he was nominated emeritus professor. From 1886 until his death he filled the presidency of the Japan Pharmaceutical Society. He was a member of the Imperial Japan Academy of Science, and president of the Japan Formulary Investigation Commission, and member of the Council of the Hygienic Laboratory. He rendered inestimable service for the improvement of pharmacy, hygiene and education, and had occupied the chair of chemistry in the Japan Women's University. On his last visit to Germany in 1927 the Deutsche Pharmaceutische Gesellschaft made him an honorary member, and the Deutsche Chemische Gesellschaft awarded him the A. W. Hofmann memorial plaque.

American Notes

The N.A.R.D. Convention.—The thirtieth annual convention of the National Association of Retail Druggists, which was held in San Francisco lately, proved a most notable and successful gathering. Among the matters discussed were better merchandising methods, legislative problems, the promotion of professional standards and, more particularly, organisation of state associations, price cutting and prohibition. The question of the maintenance of resale prices was the subject of a notable address by Congressman M. Clyde Kelly, and among the resolutions adopted was one to the effect that every member of the National Association of Retail Druggists pledges his active co-operation with all regular and special committees of retailers of all classes, in having Congressional candidates of all parties state their position regarding the Capper-Kelly Bill. The chain store situation came in for much attention, and a resolution was adopted that the Association co-operate with the Federal Trade Commission in any effort that may be made to establish the facts in order that Congress may provide an effective remedy if existing laws are inadequate.

Australasian News

V.W.B. G. E. Willoughby, chemist and druggist, has been elected deputy grand director of ceremonies of the Grand Lodge of Freemasons in South Australia. He served his apprenticeship at Camborne, left for Australia seventeen years ago, and is now managing director of a firm in Adelaide. Mr. Willoughby is also president of the Pharmaceutical Guild of Australia, in South Australia.

Restrictions on importation of codeine.—The High Commissioner for Australia has been requested by the Comptroller-General, Department of Trade and Customs, Canberra, to bring to the notice of interested exporters in Great Britain that codeine and its salts come within the scope of Australian Customs Proclamation No. 157 of April 5, 1928, which governs the importation of "dangerous" drugs into the Commonwealth, and can therefore be imported only by licensed importers, who must obtain from the Collector of Customs for the State into which they are to be imported an import permit covering each separate consignment.

French News

From the "C. & D." Paris Correspondent.

Milly, a village not far from Fontainebleau, and a local centre for medicinal-plant cultivation, announces that its "Fifth International Fair of Medicinal Plants" will be held on August 25 and 26 "in the old historic market building, dating from 1419."

In quitting the presidential chair of the Paris Society of Pharmacy, M. Dumesnil alluded to the important work done by the Society in preparing the text for the next edition of the Codex. One of his predecessors, he mentioned, had insisted on the fact that the official Codex Revision Committee, "though invested with full authority, could only apply insignificant modifications to the work which we send in," adding that they should therefore slowly and carefully prepare the text.

The question of preventing overcrowding of the profession by limiting the number of apprentices received was submitted by the General Association of Pharmacists to M. Bosviel, the barrister who conducts its cases in the Supreme Court. M. Bosviel thinks it would be quite legal. An individual pharmacist has a right to refuse to take an apprentice, and an Association could take similar action. At present an Association can only do this by unanimous decision, and it cannot control the action of a minority or even of an individual. The foundation of an Order of Pharmacists might, however, remedy this present difficulty. In publishing this communication, the Association's Bulletin gives a *résumé* of the article in the *C. & D.*, II, 1928, 748, on the limitation of apprentices in Norway.

SOLID SPIRITUOUS PREPARATIONS

By HERBERT SKINNER, Ph.C.
(President of the Pharmaceutical Society of Great Britain, 1927-29)

SOLIDIFIED alcohol has not the sale in these shingling days which it had when curling tongs and fringes were the fashion, but there is no reason why it should not be more in request than it is. Some preparations show the characteristics of easily realising a boom sale on account of novelty, and then, equally quickly, sales almost vanish through want of exploitation. Alcoholic preparations for external application are highly valued by the public, and the ease with which they can be supplied in a solid form leaves one guessing why such obvious advantages have been so consistently slurred over. It may be that the method of manufacture was wrong; and in looking up formulas like that recommended in the American Formulary I think this must be the explanation. It reads:—

Heat the liter of alcohol in a flask of double the capacity on the water bath to 60° C., and then mix with 20 to 30 grams of well-dried, rasped Venetian soap and two grams of gum lac. After repeated shaking complete solution will take place. This is put, while still warm, into suitable metallic vessels.

The very thought of having to do this to make a solid linimentum belladonnæ would certainly put me off doing it.

The question of price of alcohol is not one that need be discussed here, since the principles of solidifying is common to them all. I was requested to supply a solid eau de Cologne, which is a little different from a so-called frozen one. Again I sought through the records for a formula, and this is what met me at every reference back:—

Melt 4.5 parts of stearin, then add 0.5 of sodium carbonate to saponify and 95 parts of eau de Cologne and heat for an hour in an autoclave; colouring may be added if required. When nearly cold the compound is poured into glass moulds and allowed to set.

I confess I could find no variation from the principle there laid down. The solid alcohol market was evidently a very narrow one, and then came an insistent demand for solid iodine, stimulated, no doubt, by advertisement. At first, the immediate requisite was a preparation similar to the non-staining ones which could be rubbed into the joints without the natural unpleasantness of the denigrescent type. Several formulas were given in "The Script," built on investigations of mine some thirty years ago for "The Journal of Dermatology," and subsequently republished in "Pharmaceutical Formulas." The time arrived when the position of solid alcohol preparations should be on a more satisfactory basis, and as the demand was increasing the work had to be done. The formulas mentioned are, in my opinion, wrong and unnecessarily troublesome. The basic element of solid alcohol preparations is sodium stearate, and the amount required is 5 per cent. That being so, it was obvious that no time should be wasted in trying to make a stearate extemporaneously when I could buy the powdered stearate ready-made. The method of preparation is a simple one: Triturate the stearate with alcohol into a smooth paste and add at least 50 c.c.; warm in a suitable flask plugged with cotton-wool until dissolved, add the remainder and pour into suitable moulds. It sets in a few minutes. Such is the simple solid or burning alcohol ready for use in the orthodox way.

The idea underlying the use of alcohol on the skin is not dehydration but stimulation. Those who want the stimulation on the skin after a round of golf swear that it is a fitting climax to a win and a comfort if the game is lost. I have tried several, and find most of them the source of additional labour and no advantage. After strenuous effort a shower bath and a rub down in a dry climate like that of America in summer-time is for me quite enough. A solidified alcohol preparation would never appeal in a dry country, as it is fluid, and plenty of it is wanted; but a patient in bed with almost continuous pressure on some part would be much better relieved with a preparation based on the underlying principle:—

Refined talcum powder	10.0
Sodium stearate	5.0
Orange-flower water (triple)	15.0
Alcohol	to 100.0

Treat the sodium stearate with the alcohol as set out above, and rub the talcum powder into a paste with the orange-flower water. When the solution of stearate is ready, stir in the creamy powder and pour into suitable moulds to solidify.

It might be an advantage to add up to 25 per cent. of talcum powder, and if there are any who still believe in castor oil for this purpose, probably the Board of Customs and Excise might pass it for preparing with industrial alcohol. If we try to think of solid eau de Cologne, or it may be lavender water, or any similar spirituous preparation, isopropyl alcohol proves itself very useful. Made in the fluid form with this alcohol preparations are not quite satisfactory; but if solidified I notice the drawbacks are largely removed. A good formula is as follows:—

Ol. bergamot.	ʒij.
Ol. limonis	ʒj.
Ol. neroli	ɱxx.
Ol. rosmarini	ɱxx.
Ol. origani	ɱvj.
Alcohol isopropyl.	ʒxx.
Aq. flor. aurant. trip.	ʒj.

What I would do with this is to use synthetics where possible, increase the origanum to ɱ10, and if a cooling effect is desired add menthol gr. 10. The method of preparation is to triturate the stearate into a paste with 10 per cent. of water, add the spirit, plug the container, dissolve with heat, add the oils and then pour into moulds. In these days of silk stockings (real, artificial, or mercerised cotton), ladies suffer frequently from midge bites; and a formula was given in the *C. & D.*, for an anti-midge preparation consisting of citronella oil and spike lavender. A satisfactory solid one can be made as follows:—

Ol. citronellæ	5.0
Ol. lavand. spicatæ	15.0
Sodii stearatis	5.0
Alcohol	ad 100.0

The usual method is adopted, and the oils are added after solution is effected. As to iodine, the advantage of a solid form cannot be denied for all uses, save sterilising the skin. The method of preparation is simple, and follows the routine given:—

Sodium stearate	5.0
Tincture of iodine	to 100.0

Warm in a plugged container to effect solution, then pour into suitable containers.

Where it is necessary to have a softer variety for touching wounds or for casual application, a certain percentage of water can be used to replace the alcohol, even up to 25 per cent. This is much softer, and is only suitable for topical application. The denigrescent type presents a great difficulty with alcohol, as oils are out of the question; oleic acid is available, but somehow upsets the solidifying properties, probably by combining with the stearate, as the colour certainly changes. The best solid of this type is:—

Ac. stearic.	ʒiv.
Iodi	gr. 48
Acid. oleic.	ad ʒj

The mind of the true pharmacist only needs a slight suggestion to become fertile in ideas.

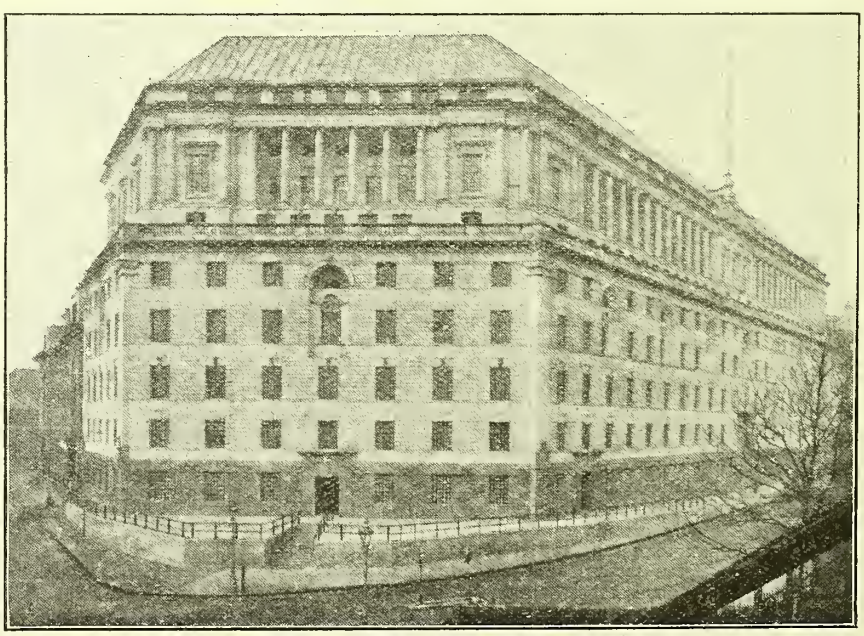
IMPERIAL CHEMICAL HOUSE

This latest Addition to the great Business Houses of London was designed by Sir Frank Baines and completed in the very short Period of two and a half Years

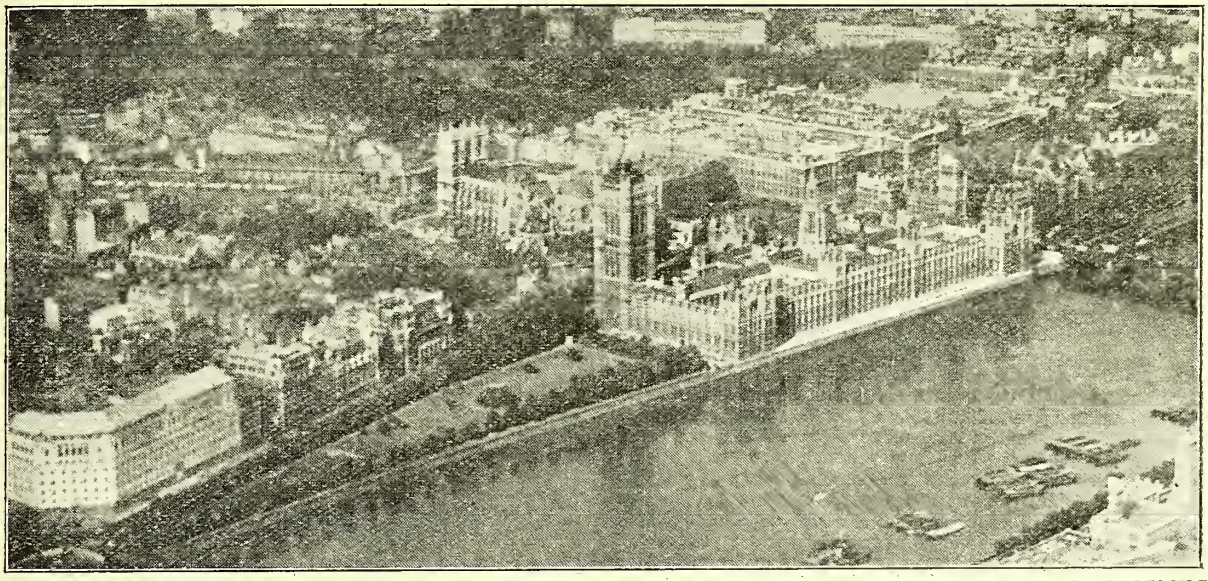
THE administrative buildings recently erected by Imperial Chemical Industries, Ltd., at the junction of Millbank and Horseferry Road, London, S.W.1, are of interest from the fact that they represent the last word in office organisation. It must be conceded that few concerns could hope to emulate the attainments in this respect of Lord Melchett and his directors, but as a model on which to build, Imperial Chemical House must stand second to none. The first impressions of a visitor on entering the new building lead to a premature conclusion that little will be found to interest the average pharmacist. After a time, however, one experiences a sense of pride as a citizen of the Empire which can bring to fruition such magnificent projects, and as a tour of the premises is made numerous links with science unfold themselves to stimulate interests other than the architectural appreciation of an engineering triumph. The work undertaken in the offices is not entirely divorced from pharmacy, for purely chemical commerce is interwoven and inseparable from the pharmaceutical calling, and the concern handles numerous medicinal products. The growth and progress of Imperial Chemical Industries, Ltd., has been rapid, for at the second annual general meeting held in April of this year the authorised capital was increased to £95,000,000, and when the company was registered late in 1926 the sum was £65,000,000 The original flotation was the outcome of a fusion of interest between shareholders in Brunner, Mond & Co., Ltd., Nobel Industries, Ltd., the United Alkali Co., Ltd., and the British Dyestuffs Corporation, Ltd. Since then various interests have been absorbed and associated companies were recently formed in Brazil, Chile, Peru and the Argentine. It is in keeping with the resources of this organisation that the erection of its headquarters was a record for speed, as the normal time taken for such a task is about six years. Work was commenced on the excavations at Christmas 1926, and eighteen months later five floors of the main building were occupied.

External Design

The general architectural order is English Renaissance, and the building is planned around three internal main courts. The design is in complete harmony with the surroundings, and, as will be seen from the aerial photograph the river is the controlling external factor. The composition of horizontal lines and suppression of all verticals follows the sweep of the Thames. The frontage on main roadways measures 546 feet, the splay front itself being one hundred feet long. The ground floor elevation of the main facade is in blue-grey granite, and above this the building is entirely in white Portland stone to the ridge of the roof. There are nine floors and five entrances. On the main fronts the walls rise perpendicularly to the fifth floor, where a heavy cornice is surmounted by a balustrade, the walls above this level being set back. From the sixth floor Ionic colonnades rise on the Millbank and splay fronts to a height of over twenty feet, thus carrying up the plane of the lower walls. The white stone roof is unique. Its expanse is broken by raised ribs running at intervals from the eaves to the ridge, which is 145 ft. 6 in. above the basement floor. In the main facades deep inset arches rise from the third to the fifth floor. Each arch is surmounted by a carved portrait head representing some great figure in chemistry or the chemical industry (see *C. & D.*, 1928, I, 495) These include Leibig, Priestley, Ludwig Mond, Alfred Mond, Lavoisier, McGowan, Mendeleef, Cavendish and Dalton. Inset in each arch and forming a keystone to the window of the third floor is a carved stone feature, a shell alternating as the motif with a peacock with spread pinions—the symbol of incorruptibility. On the four salient points of the main front, at cornice level, are to be placed groups of statuary representing the primary industries of agriculture, transport, chemistry and building. On the walls behind the colonnade are



VIEW OF EXTERIOR OF IMPERIAL CHEMICAL HOUSE, SHOWING SOUTH-EAST ASPECT AND MAIN FRONT



AERIAL PHOTOGRAPH, SHOWING IMPERIAL CHEMICAL HOUSE, THE THAMES, HOUSES OF PARLIAMENT, WESTMINSTER ABBEY, ST. JAMES'S PARK, etc.

carved various panels with Imperial floral motifs. The rose, thistle, daffodil and shamrock are the emblems for the British Isles, and the protea, maple, wattle and lotus represent South Africa, Canada, Australia and India respectively. The doors at the entrances are covered with silveroid, a copper-nickel alloy possessing unusual properties of durability. The main entrance door is fitted with an electro-magnetic control operated by a switch from the inside. Each leaf weighs approximately thirty-five hundredweight. The external faces of both leaves are enriched with six figured panels, each pair in parallel, and the basic idea of the scheme is to illustrate the evolution of modern society. They portray the progression made by man from primitive conditions through the application of science to industry, endowing mankind consistently throughout with power of æsthetic enjoyment, leisure for individual development, increasing efficiency, and the realisation of a happy life.

Internal Features

Entering the premises by way of the main doorway, the thought and scientific experience which have been drawn upon in construction at once reveal themselves, and the mind automatically revolves round the question of efficiency. The doors open into a vestibule from which Cornish granite steps lead to the main entrance hall. In the vestibule above the inner swing doors is carved a tympanum, with an Imperial maritime motif taken from the seal of the company. Twelve marble pillars and pilaster responds of Tuscan design form a double colonnade in the hall itself. The floor is of black and white marble, square tiling alternating with circular geometric groups. The walls are of white marble with carved floral panels, and the swing doors leading to the various corridors have an ebony finish. The doors of the passenger lifts and the railings of the stairwells and balustradings are in solid silveroid. The treads of stairs and the corridors are covered with black rubber, highly vulcanised. The entrance from Smith Square leads through a vestibule to a large hall adorned by marble heads representing Roger Bacon and Michael Faraday. From this hall the museum is reached down a short flight of stairs. Doors opening into corridors are of unpolished oak, and the floors of the rooms are covered with linoleum. There are seven hundred single bay rooms in the building. The more important rooms are in general panelled, the woods used including English oak, Australian silky oak, English and Ancona walnut, Australian black bean and Indian laurel. The sixth floor contains the palatial directorate suite. The flooring here is walnut throughout, and the system of general lighting is unique. The sources of light are entirely concealed by day, but when required a panel of the ceiling rises and floods the room with artificial sunlight. The board room is magnificently panelled in veneer walnut, and the plaster enrichments accentuate the relief. This room is situated in the middle of the Millbank colonnade, and opens on to a promenade which commands a most interesting view of the Metropolis. The eighth floor is devoted entirely to the purpose of kitchens and refectories where the staff are supplied with meals at a nominal charge. The main refectory floor is specially constructed for dancing, and amplifiers are provided for speech and music, together with wireless reception apparatus. On the sixth floor of the extension from the original building is the library, which extends through two floors. The domes and windows of the library contain rich stained glass. Smoking and card rooms are also available to the staff as well as rest rooms for the ladies, each being fitted with coffee counters. Artificial daylight is used throughout Imperial Chemical House, which is believed to be the first building in the world to use this type of lighting exclusively. No natural lighting reaches some of the corridors, illumination being carried out by means of rectangular ceiling panels. Desk lamps in the form of globes are provided in the more important offices, each globe bearing a reproduction in relief of a map of the world. The general ventilation is by mechanical extraction, the rates of air change per hour varying from three in the offices to twenty-five in the kitchen. Ozone apparatus consisting of quartz tube generators has also been installed. The distributing pipework is of aluminium, which is not attacked by ozone. Vita-glass glazing of the windows permits the maximum amount of natural ultra-violet rays to penetrate into the building. In addition there is also a small artificial sunlight clinic under the supervision of a medical man. This was installed by John Bell & Croyden, Ltd. The building is fireproof, but fire extinguishers of the compressed carbon dioxide and of the carbon tetrachloride types are housed in recesses in corridors. There are a thousand Post Office telephones, as well as a like number of intercommunication instruments. The panel system of heating is used throughout, and a refrigerating plant of the ammonia type is used to cool the building during the summer months. Other considerations for the staff comfort include parking accommodation for cars, a gymnasium, squash racquet and badminton courts, a rifle range, and special rooms for drying wet garments. Impressive the building certainly is, and it is none the less so for the magnificent way in which the architect has rendered it symbolic of Empire, Industry and Science.

THE JASMINE SYNTHESIS

With an Account of the Flower Industry and some Notes on Processes and recent Chemical Bodies

By W. A. POUCHER, Ph.C.

THE perfume of the jasmine flower is one of great delicacy, especially when fresh; but when quantities of the blooms are left in a confined atmosphere for a period, then the odour becomes, to most people, objectionable and offensive. This is easily explained; but to the uninitiated the scent of the flower appears to have undergone decomposition in the above circumstances, whereas in actual fact nature has produced in the flower quantities of one of the constituents of the jasmine perfume, which constituent, owing to accumulation in the plant and subsequently in the atmosphere, subdues the other more delicate constituents with the production of an odour note suggestive of a manure heap. It is probably for this reason the jasmine blossoms have never attained that popularity and esteem accorded the rose and the violet. The jasmine flower appears to have played a very small part in history; but it is difficult to say whether this is due to any observed change in its perfume or to its comparative insignificance when placed beside its more elegant sisters, lily, narcissus, and rose. It is generally supposed to have been a native of India, and to have become indigenous to Southern Europe at an early date. Hooker, in his "Flora of British India," gives it as his opinion that the plant originated in the tropical regions of the North-West Himalayas, where it is to-day found growing at altitudes of from 2,000 to 5,000 feet. Other botanists take the view that it originated in other parts of India (Nepal and Malabar), while a few regard it as a native of Asia Minor. The fact remains, however, that the jasmine species are particularly prevalent in the Himalayas and also in the hilly districts of Ceylon. In England the most prominent species is *Jasminum officinale*. It has a sweet fragrance, but in power is not to be compared with that of the species cultivated in France for perfumery purposes. Actually, the only wild variety found in the latter country is *J. fruticans*, bearing small yellow, comparatively inodorous flowers on a stout stem, growing particularly in the regions bordering the Mediterranean. In the higher valleys of the Alpes-Maritime the English species is often found, and it appears to have become acclimatised there. *J. grandiflorum* as well as *J. fruticans* is grafted on *J. officinale*, the former very successfully, the latter experimentally and with only a modicum of success. The resulting blossoms, curiously enough, were white in colour, and the perfume intense, although the plantations died off too rapidly. *J. grandiflorum* is a native of the East Indies, and is best known as the Catalonian or Spanish jasmine. It occurs in both the single and double forms, and is very much like *J. officinale*, upon which it is much grafted in the Grasse district, and cultivated there exclusively for the extraction of its perfume. *J. trifoliatum* is a variety of *J. Sambac*, and known in Britain as the Tuscan jasmine. In British India it is known as Kudda-Mulla. The Shuei flower of Formosa, used for perfuming tea, is another species, and *J. odoratissimum* is a native of Madeira. Altogether there are some 150 known species in the extensive genus, but further hybrids appear from time to time. For instance, in 1920 M. Thomas Javit, of Saint Etienne, produced a most beautiful hybrid, now known as *J. Stephanense*, by crossing *J. officinale* var. *grandiflorum* with *J. Beesianum*. The plant is of particular interest owing to the colour of the flowers—a delicate rose—its pleasing fragrance, and the fact that it is probably the first artificially obtained jasmine hybrid. It is worthy of note, too, that the male parent was introduced into European cultivation by Messrs. Bees, of Liverpool, and grown by them from seeds obtained from Western China by the explorer Forrest.

Cultivation and Picking

THE cultivation of jasmine is an industry of considerable importance, and, curiously enough, is confined to the region around Grasse. If the tourist journeys from Cannes to Grasse any time between the end of July and the middle of October he (or she) will be amazed at the succession of fields devoted to this flower. A normal crop for extraction in the factories is about 750 tons, distributed approximately as follows:—Grasse-Montauraux, 450; Monous-Mougins, 200; Pergomas-Cannes, 100. In an exceptional year, when atmospheric conditions allow of the collection of the flowers up to the middle of November, the above figures are exceeded. The crop is gathered as soon as possible after the flowers open; in the evening, up to the middle of August, and from dawn till 2 p.m. after that month. The blossoms collected during August and September yield the highest percentage of perfume. When a new plantation is being considered there are many aspects of the problem which must receive attention. As is well known, the climate, though comparatively ideal on the shores of the Mediterranean, is subject to sudden changes—very hot summers with long spells without rain; sudden frosts in the winter, and, occasionally, disastrous snow conditions. Facilities for irrigation are very necessary in the former, and a sunny aspect to reduce risks in the latter. Conversely, with excessive heat the plant grows too quickly, and when too damp it dies. This is not the end of the flower farmers' troubles. The state of the soil is of great importance, and a preference is generally given to land which for some time has been devoted to cereals. When ground has to be chosen which has been used previously for the production of fruit, figs and olives, it is most necessary that all roots should be dug up and removed completely, because, when left in the ground, they decay with the development of a fungoid growth which in turn produces a disease of the jasmine plants knows in Provence as "la mouffe." This completely destroys the plants in a very short time. After the ground has been dug over, rooted plants of *J. officinale* are transplanted in rows, and after a year's growth *J. grandiflorum* is grafted on them. When the first flowers have appeared, the plant is pruned and the ground covered over as a protection in the event of severe frosts. In the spring they are uncovered and soon begin to develop. To this work of planting and grafting must be added the labour of hand cultivation and manuring, followed when the crop is collected by the difficulty of obtaining adequate labour supplies. From this it will be realised that the cultivation of jasmine on a commercial scale is an altogether different proposition from our English garden cultivation, and it is attended with considerable risks. Finally, the gathered flowers must be delivered to the factories as soon as possible after collection. Some of the approximate costs in connection with such an undertaking are as follows:—

A hectare of good ground costs from 15,000 to 20,000 francs.

A water reservoir and irrigation canals may be constructed for 5,000 to 6,000 francs.

The preparation of soil and planting costs about 50,000 francs.

First year's expenditure with no return equals 75,000 francs.
Second year grafting and cultivation costs 20,000 francs.
Third and successive years cost 25,000 francs.

The first crop of any consequence is obtained in the third year, so that before any considerable return on capital is received as much as 120,000 francs must be spent, added to which, of course, is the pay of the pickers—as much as 5 francs per kilo of blossoms. With reasonable luck a jasmine plantation lasts twenty years; but once it has been pulled up no further growth on the same site is possible. The yields of flowers per hectare of 100,000 plants after grafting, will in the first two or three years, rarely exceed a few hundred kilos of blossoms, but in the fourth year about 4,000 kilos may be expected. This figure is maintained for six or seven years, when a gradual decrease becomes evident. The collection of flowers is a long, tedious and delicate operation, and is done mainly by women and children. The number of blossoms in a kilo of jasmine is about 8,000 at the beginning of August, and about 14,000 at the beginning of October. A really expert woman will collect as much as 800 or 900 grams of flowers an hour, but on an average—women and children taken together the figure is nearer 500 grams an hour—i.e., three kilos in six hours. As soon as possible after the flowers are picked they are sent to the factory for the extraction of their perfume.

Extraction Processses

THERE are three distinct processes available for flower extraction; and in selecting the one most suitable, the manufacturer is guided not only by the yield, but also by the quality of the odour of the finished product. This, again, depends in some cases upon the evolution of perfume within the flower, which in two notable instances—jasmine and tuberose—does not cease when the flower is picked off the stalk of the plant. The glucosides present in the flower continue to be split up with the formation of volatile oil; and providing this is removed, as in enfleurage by absorption of the perfume by the fats, the production of perfume continues until no glucoside is left in the flower. This process of enfleurage is the oldest one in use in the South of France, and at one time was the only method available for the extraction of all flowers. The perfecting of the volatile solvent process by the utilisation of a specially purified petroleum ether has revolutionised the industry, and in spite of the beautiful jasmine products available to enfleurage, the latter process is used for treating nearly 90 per cent. of these treasured flowers. These two processes are briefly as follows:—

Enfleurage consists of placing the blossoms in contact with specially purified and prepared fats for a period of at least twenty-four hours in the case of jasmine, and for double this time for tuberose. The melted fat is first painted on both sides of the glass tray portion of the "chassis," a wooden frame specially made to hold it. The absorption surface of the fat is increased by means of furrows, criss-crossed with a specially made wooden fork. As soon as the blossoms have been lightly sprinkled on the fat the chassis are piled up, one on top of the other, to a height of six or seven feet each glass plate making a hermetically enclosed space, the fat surface above as well as below, absorbing the perfume as it is given off. As each batch of blossoms becomes exhausted they are removed and replaced with fresh ones, the process being repeated until the fat is fully saturated with perfume. This is subsequently removed and is known as pomade. Years ago pomades were converted into extracts by treatment with alcohol, and these formed the stand-by of the perfumer in the preparation of his flower scents and bouquets. To-day, however, a preference is shown for the absolute flower oil owing to its high concentration and free solubility. Enfleurage absolutes are now made from these pomades, which are first shaken up with strong alcohol in special machines; the perfume solution is then filtered to remove undissolved wax, and subsequently placed in a suitable atmosphere, where a freezing machine reduces the temperature to below zero. This causes the soluble waxes to congeal, and they are filtered out. The solvent is now distilled off *in vacuo* when the enfleurage absolute remains behind in the retort.

The volatile solvent process is of course much less cumbersome, and larger quantities of flowers can be dealt with more quickly. Huge receptacles, resembling pharmaceutical percolators, are arranged in series, pipes connecting the outlet of the one with the inlet of the next and so on. The fresh flowers are lowered into these either on trays or in perforated cylinders, and the lids hermetically sealed. The solvent is then allowed to run slowly through the whole series, escaping from the last unit into a vacuum still, where it is removed and returned to the storage tank to pass through the series again and again until the flowers are exhausted. As each unit becomes exhausted fresh flowers replace the old ones, so that the continuity of the process is not interfered with. The residue in the retort is known as concrete, which consists of fatty glycerides as well as essential oil. This is isolated in the form of absolute flower oil in a manner similar to that already described above. The yield is normally as follows:—

Volatile Solvent Extraction

—	Weight of concrete	Weight of absolute	Absolute from concrete
1,000 kilos of jasmine flowers ..	3.00 kilos	240 gm.	8.00 per cent.

The relative value of these two processes as applied to jasmine has led to a good deal of discussion, and from the point of view of odour, enfleurage appears to hold the laurels, whereas volatile solvents give the greatest yield. This difference in yield, however, was shown by Nivière ("La Parfumerie Moderne," 1921, 225) to be inconsiderable, since 1,000 kilos of jasmine gave:—By enfleurage five to six kilos of concrete, containing 25-28 per cent. of absolute—i.e., approximately 1.25-1.5 kilos against 1.3 to 1.4 kilos of absolute by volatile solvents. (This latter figure does not agree with the more recently observed yields given above.) Nivière's statement gave rise to some doubt at the time of its publication, and further investigation was undertaken by von Soden, who extracted several thousand kilos of jasmine flowers, obtaining a relative yield as between enfleurage and volatile solvents of 5-2 ("Deutsche Parfumerie Zeitung," II, 1925, 149). No actual figures are given. If the market price of these two oils is to be taken as any criterion of the yield, then von Soden's figures are not far from the truth. The comparative odour evaluation of these products was investigated by the author (THE CHEMIST & DRUGGIST, March 10, 1928), who found a very slight preference for the enfleurage absolute, price being taken into consideration.

Odour Values

WHILE referring to the question of odour, it may be as well to consider again the introductory remarks to this article. It is, of course, well known that natural jasmine perfume contains indol, a constituent of undoubted importance in determining the characteristic odour of the flower. Further glucosidal decomposition ceases when the blossoms are treated with volatile solvents, whereas since life does not become extinct immediately the flowers are placed on the chassis, it necessarily follows that more perfume is produced with a consequently enhanced yield of indol in the absolute by enfleurage. This view has not always been accepted, but further investigation was undertaken by Cerighelli ("Comptes Rendus," 179 (1924) 1193), whose experiments resulted in the following conclusions:—

(1) Indol is a normal constituent of *J. grandiflorum*. In the flower it may exist as a complex combination, not detected in the floral bud. When the flower opens, the indol is liberated and is dissipated in the atmosphere. During the night indol accumulates in the tissues of the flower, to be dissipated as the light acts on the plant. (2) Indol continues to be liberated by the gathered flowers; it only accumulates in a confined atmosphere. This accounts for the objection-

ible nature of the jasmine odour already referred to. (3) Treated after keeping in a confined atmosphere, as is the case in the industry, the flowers give up indol to the process of extraction and distillation. (4) Treated by enfleurage, the flowers yield, over a period of twenty-four hours, three or four times more indol than by either extraction or distillation.

When jasmine flowers are treated with volatile solvents, their fragrant substances are, according to von Soden, obtained in a much purer and more nearly perfect state than by the enfleurage method. Extraction recovers precisely those very important and as yet unknown odorous compounds which, owing to their low degree of volatility, remain behind in the enfleuraged waste flowers because they are, with difficulty, absorbed into the fat.

Chemistry of the Perfume

THE chemistry of the jasmine perfume, like that of all other flowers, has by no means been completely investigated, although it is doubtful if any further elucidation could be accomplished with present analytical methods. The analysis made by Hesse and Mullea in 1899 still stands. It is (in percentages) as follows :—Benzyl acetate, 65.0; linalol, 15.5; linalyl acetate, 7.5; benzyl alcohol, 6.0; other bodies, 5.5. The unidentified constituents were further investigated by Hesse who found the following (percentages of total) :— Indol, 2.5; jasmone, 3.0; methyl anthranilate, 0.5; p-cresol, traces; and geraniol, traces. While the chemistry of most of these constituents is very well understood, that of jasmone remains for the present at any rate an enigma.

Synthetics

AS soon as the analysis of jasmine was published, the synthesis of the perfume quickly followed; but the number of pure chemical bodies then available did not allow of such a good duplication of the scent as is possible to-day It is true that the basic constituent, benzyl acetate, has not altered materially, and it still functions in a similar manner. Alone, benzyl acetate has a raw odour, and it is the softening, blending, and rounding off of this which constitutes the perfumer's art, in contradistinction to the strictly scientific aspect of the productions of the pure chemical bodies which subsequently become his raw materials. In this country it has been the settled policy of the large makers of synthetics to put on the market products of standard purity—that is to say, synthetics which have not been "nosed" in their laboratories preparatory to their being issued for sale. This practice of "nosing" had its birth on the Continent, and unfortunately the setting up of a false olfactory standard for many products has resulted. The object of "nosing" a pure synthetic is to give it an enhanced odour, which will attract the buyer and induce him to pay a higher price for what he thinks is a better-quality product. The only synthetic which will function in this manner is indol, and it is surprising what a difference one part of this will make in one hundred thousand parts of benzyl acetate. The author has always held the view, however, that it pays the manufacturer to buy pure synthetics and to do the "nosing" himself in accordance with his own fancy.

In the synthesis of jasmine oils, *benzyl acetate* may be used up to nearly fifty per cent. of the finished compound. *Benzyl alcohol* is a valuable fixative, boiling at about 204 deg. C., and having a faint aromatic odour when freshly prepared. There are several esters of this alcohol in addition to the acetate which are useful in jasmine compounds, the principal ones being :—

Benzyl butyrate must be used in moderation, otherwise it will subdue the desired sweetness of the ultimate blend. Something like 2 per cent. is the figure to be aimed at.

Benzyl formate should be used with great care in small percentages to accentuate the odour of the acetate. The harshness of benzyl acetate may be reduced by the addition of about 1 per cent. of meta-cresol phenyl-acetate a month before it is used.

Benzyl salicylate, a colourless liquid, having a faint odour, makes a good fixative as an alternative to either benzyl alcohol or benzyl benzoate.

Benzyl propionate is best employed in combination with the acetate up to about 10 per cent., blended previously. This will impart to jasmine oils a piquancy obtainable with no other raw material.

The next basic substances of importance are :—

Linalol occurs naturally and imparts to jasmine oils that roundness and sweetness lacking in the benzyl esters.

Phenyl ethyl alcohol is widely distributed in nature. It is a well-known constituent of the perfume of fresh roses, but in the distillation of otto the greater part of it disappears owing to its solubility in water. It blends well with both benzyl and linalol in the jasmine base.

Methyl anthranilate possesses a sweet and penetrative odour of the orange blossom type, and is used in artificial jasmine to impart and reinforce this particular note. From 5 to 7 per cent. is the usual proportion to employ. It is true that methyl anthranilate has a somewhat sharp odour, but this is characteristic of all synthetics when compared with natural products of similar type, and for those who can afford it this chemical body may be replaced either wholly or in part with terpeneless French petitgrain oil.

Terpineol is a cheap synthetic, possessing an odour recalling that of lilac. Used sparingly, it will enhance the flower note of a jasmine floral oil.

Hydroxy-citronellol is of comparatively recent introduction and blends excellently with jasmine.

Indol occurs naturally in several blossoms besides those of jasmine, and chemists familiar with its odour note will easily recognise it when entering a room in which lilac flowers have been standing overnight. Similar remarks apply to orange blossoms and wallflower. The disadvantages attendant upon the use of indol in flower oils are serious, as compounds containing it rapidly assume a deepened colour. In fine perfumery, however, there is no doubt whatever that this substance is of paramount importance, because even one part in 10,000 or 20,000 will improve and reinforce the bouquet of many perfumery creations. It is synthetically prepared during the manufacture of indigo, and until quite recently was the only known body capable of giving that indescribable cachet to good jasmine compounds.

Uses of Amyl Cinnamic Aldehyde

AMYL cinnamic aldehyde is the outstanding achievement of recent synthetic chemistry. The fact that a nationally-advertised soap, which appears to be getting a hold on the market, is perfumed with a compound in which amyl cinnamic aldehyde predominates, has suddenly brought this comparatively new synthetic into prominence. It has been known under various names for at least six years, and at the moment there appears to be some little competition between the few firms as to which of them did in fact place it upon the market first. This point is, however, of slight interest, because what really concerns the perfumery chemist is the best and most economical method of its utilisation. The starting point in the synthesis of amyl cinnamic aldehyde appears to be castor oil, from which substance also many other aromatic synthetics arise (notably gamma-undecalactone, the old so-called tetradesyl aldehyde, and methyl heptine carbonate, violet leaf base). Amyl cinnamic aldehyde is a liquid of yellowish-green colour, and possesses a pronounced odour of considerable body, which on dilution assumes the delicacy and piquancy of jasmine. This odour note was doubtless responsible for the many jasmine appellations which characterised its marketing, although one or two makers gave it names which were of no guide to its particular application in perfumery. This aldehyde has been of considerable assistance to makers of jasmine compounds, and it has supplied just that odour note which one was led to believe might be attributed to the jasmine present in natural jasmine oil. It is true that for some years this note was imparted to some extent by the use of indol, and sometimes skatol, but everyone knows the grave disadvantages in the use of this substance—particularly as regards its alteration in colour upon keeping or exposure to bright light. In the case of artificial jasmines comparative tests readily demonstrate that in point of odour there is a great similiarity on dilution between amyl cinnamic aldehyde and indol, with nevertheless a distinct preference for the former. In view of the admirable manner in which this aldehyde blends with the jasmine odour, the

possibility of its application in all those directions in which jasmine is utilised at once becomes apparent. Notable instances of this are to be found in lilac, orange blossom, and tuberose. There is at present a tendency to overload these artificial flower oils with amyl cinnamic aldehyde, and its presence is too readily perceived by all those chemists who are familiar with its characteristic odour. In this particular case it is desirable to err on the side of too little rather than too much, and numerous practical tests indicate a maximum of 5 per cent. in the above-mentioned artificial flower oils. In some samples of amyl cinnamic aldehyde there is a resinous by-odour, due to imperfect control during its synthesis, and which is masked by the addition of other synthetics, such as hydroxy-citronellol and phenyl-propyl aldehyde. It will blend with a very wide range of perfumery raw materials, and in bouquets is useful for imparting body as well as fixity to the finished odour. It would seem to be particularly useful in those perfumes based largely upon ylang-ylang oil blended with neroli or petitgrain.

General Suggestions

IN the preparation of soap compounds there are many considerations which have to be given to the possible constituents, and stability is one of the most important. As a general rule, volatile oils show better than synthetics and natural isolates in this direction; but if in the latter group such well-tried substances as amyl salicylate, bromstyrol, and safrol are regarded as representative of the best artificial soap perfumes, then amyl cinnamic aldehyde may, according to present tests, almost enter this class. Careful blending is necessary for the proper development of the odour, and the following raw materials are excellent:—Bois de rose, guaiacwood, bergamot, citronella, petitgrain, cananga, benzyl acetate and butyrate, linalol, phenyl-ethyl alcohol, methyl anthranilate, methyl acetophenone, and terpineol. Viewed from all angles, there is very little doubt that amyl cinnamic aldehyde is one of the most useful synthetics discovered in recent years, and those manufacturers who have not already found a use for it are missing a share of odour which has come within the range of popular appeal. In the production of all artificial flower oils, the use of some of the natural absolutes is desirable, and should be added to whatever extent the manufacturer can afford. Even one or two per cent. makes a wonderful difference, perceptible as soon as the compound is diluted; but, of course, this quantity will immediately double the price. In any event, some Bourbon ylang-ylang oil should be added to impart naturalness, even if price will not allow of the use of jasmine absolute. Five per cent. is a practical medium. The table given shows some suggested combinations, including numerous variations on the synthetics described. As indicated, these must be left for a month to mature.

Synthetic Jasmines	1	2	3
Benzyl acetate	400	50	210
Benzyl alcohol	70	455	100
Benzyl formate	—	—	200
Benzyl butyrate	9	14	—
Benzyl propionate	30	—	—
Linalol (ex bois de rose)	120	120	120
Phenyl-ethyl alcohol	100	120	140
Methyl anthranilate	40	60	80
Terpeneless French petitgrain	20	—	—
Bourbon ylang-ylang	50	40	30
Terpineol	25	20	30
Hydroxy-citronellol	25	20	30
Indol (10 per cent. solution)	—	1	—
Amyl cinnamic aldehyde	30	40	50
Meta-cresol phenylacetate	—	—	2
Nerol	—	20	—
Acetyl acetate	1	—	—
Phenyl-ethyl butyrate	—	—	8
Jasmine absolute	20	10	—
Civet extract (five per cent.)	50	30	—
Tolu balsam	10	—	—
Mature one month	1,000	1,000	1,000

Sporting Events

ON June 12, under excellent weather conditions, a team of cricketing members of the Ipswich Branch of the Pharmaceutical Society, captained by Mr. S. J. Stearn, met Sudbourne Park cricket club. The Ipswich party journeyed to Orford by road, and after visiting the castle and church, met at the "Crown and Castle Hotel" for tea. After tea they proceeded to the grounds, where they were welcomed by Mr. J. Doyle (captain of the opposing team). An enjoyable game was played, the chemists winning by the narrow margin of ten runs.

Ipswich		*Sudbourne Park*	
H. Beale	0	W. Dower	6
F. W. Barker	4	F. Goldsmith	17
G. Fenn	4	C. Cocker	15
F. Wiggin	10	A. Allen	0
G. W. Hales	13	A. H. Mander	27
G. Whitman	6	J. F. Doyle	1
T. Baker	4	J. W. Pentley	4
S. J. Stearn	25	J. Brown	2
G. Whymark	0	A. Spurling	0
S. H. Hammond	13	E. Howe	0
Extras	12	F. Earland	6
	—	E. Sutton	7
Total	97	Extras	2
Reynolds and Hawkins did not bat.		Total	87

Summer Outings

Visit to Dovedale

THE Mansfield and District Branch of the Pharmaceutical Society held its annual outing on June 19. This consisted of a motor run to Dovedale, via Chesterfield and Bakewell. Tea was taken at the Peverill of the Peak Hotel, and the return journey was made by Cromford and Ambergate.



Photo] [*Vallance*

A MANSFIELD PARTY IN DOVEDALE

A Staff Function

ON June 15 the staff of John Bell, Hills & Lucas, Ltd., held their tenth annual outing. This took place at Southend under ideal weather conditions. During the morning sports were held in Southchurch Hall Park, the result being a win for the manufacturing department, which holds the Walter Hills shield for the third year in succession. Dinner and tea were served, and Mr. J. Stuart Hills presided on both occasions, supported by Mr. E. W. Lucas (joint managing director) and Messrs. L. N. Hensman and H. B. Stevens (directors). A vote of thanks to the directors was proposed by Mr. G. Smith. Mr. J. Stuart Hills replied. The prizes won during the day were presented by Mrs. E. W. Lucas, supported by Mrs. J. Stuart Hills. A telegram of good wishes was sent to the chairman (Mr. Walter Hills), and a reply was received. The outing committee, Messrs. T. Brooks, G. Denton and F. A. Hartridge, under the chairmanship of Mr. H. B. Stevens, were thanked for the way in which the arrangements had been carried out.

NOTES ON A SEVENTEENTH-CENTURY PRESCRIPTION

By E. M. HOLMES, Ph.C.

IT is not often that one comes across an almost unknown prescription nearly 250 years old. As a matter connected with the history of pharmacy, I have thought that the following paragraphs may be of interest, at all events to those who may make a hobby of that subject. A few months ago I had a prescription forwarded to me with a request for any light that I could throw on the articles and preparations contained in it. Most of the books having such formulas are only to be found in a few libraries.

The prescription was written by Dr. John Skelton on June 2, 1693, for Mr. Ralph Thoresby, F.R.S., of Leeds, who was born in 1658 and was educated at Leeds Grammar School, now the appropriate resting place of the volume of manuscript containing it. A rough translation is included in "Letters to Ralph Thoresby," published by the Thoresby Society ("Miscellanea," vol. xxviii, pp. 457 *et seq.*). With the prescription, which comprises four separate parts, is included a letter of advice to the patient, of interest as showing the ideas then prevalent concerning various foods. The letter consists of such instructions as these :—

SIR,—Your Dyett must be of meat of easy concoction & of good iuice, without variety of dishes & strong Sawces without onions, garlik, mustard, horse radich, anchoves & horspices & such things, your stomack must never be overburdened, nor your appetite totally Satiated, you must make but one meal a day, & that at noone & if you eate something at night it must be some light matter & not too late, you must eat nothing till the former meal be concocted. . . .

At the end of your dinner you must take some times halfe a spoonful of a digestiue powder which is described in the other paper, drinking nothin vpon, if it is possible for a good while after, sometimes you can take at the end of your dinner, a preserved walnutt, a little bitt of quinces, marmelade, a little piece of orange or limon pill [peel] preserued, some few raisins of the sunne, some few almonds. Your ordinary drink must be of good small beer or small Ale of convenient Age, neither too new, nor too stoale. You must avoide (which is great pitty) wines of all sortes of all sortes of grapes without the double of water, & if you transgresse that rule let it be moderatly, auoide also too much drinking of Strong Ale, marsh beere, mum & such strong and heady liquors. . . .

Rising Early is very conducible & being vp, it is good to comb your head & to haue it gently rubbed to open the pores only & to discusse that numnesse which remaines after sleeping, you can rubb the nummed part with a little of queene of Hungary water & a little round the affected part. . . .

The following is the prescription, with brief comments on each part :—

The Digestive Powder

℞ Corriandr. præparat. semin. fœnicul. dulc. anisi Cinamoni aa. ʒj. nucis moschat. ʒij. pulverisentur substillissime & cum dupla quantitate Sacchar. rosat fiat pulvis, Capiat Cochlear. ss. post prandium ut directum est.

It should be unnecessary to translate this not very difficult piece of medical Latin. Prepared coriander seeds are those that have been steeped in vinegar for a day and a night : they were then considered to be milder in action (see Gray's "Supplement to the Pharmacopœia," 5th ed. p. 856). "Semin. fœnicul dulc." probably refers to the long variety of French fennel, which is sweeter and better-flavoured than the ordinary wild fennel. "Sacchar. rosat" is presumably the one made of red rose petals (*Rosa Damascena*) pounded with three times their weight of white sugar or dipped in thick syrup and allowed to dry (P.L. 1677). A formula for saccharum rosatum tabulatum is given in the London Pharmacopœia, 1682. It is made of dried red rose petals deprived of the pale claws and dried quickly in the sun, an ounce to a pound of white sugar, with further treatment when made into tablets.

The Physick

℞ folior. orient. mundat. ʒij. tamarind. ℥ss. radic. mechoac. ʒj. Rhabarb. crassincule pulverat. semin fœnicul. dulcis aa. ℈ij. polypod. querc. & santal. citrin aa. ℈j. macis gr. iij. infunde tepide per totam noctem in aq. stillat. Cichor. fumar. & betonicæ aa. ℥ss. incolatur & expressive dissolva syrup. rosar. solut. & de Rhamnis aa. ℥ss. al. prunell. ℈j. fiat potio sumenda summo mane ex arte.

The first ingredient should be interpreted as best senna leaves. Fol. oriental. is given in Lewis' "Materia Medica" (3rd ed., p. 600) as a synonyn of sena, Ph. Lond., and senna, Ph. Edin., which is brought dry from Alexandria in Egypt." The word "mundat." is still in use in German wholesale drug lists, and may be translated as cleaned, selected or of best quality. This term distinguishes the Alexandrian leaves from "inferior sorts brought from Tripoli or other places" The second ingredient, tamarind, is not qualified as to the particular commercial variety to be used. The third, radix mechoac., is the mechoacanna then in the Edinburgh Pharmacopœia but subsequently expunged from it. Its botanical origin was for some time uncertain. Caspar Bauhin attributed it to *Bryonia mechoacanna alba*; by Ray it was referred to *Convolvulus Americanus 'mechoacan' dictus*, and by Linnæus to *Convolvulus mechoacanna*. The root was introduced in 1524, and was brought into commerce chiefly from a province of Mexico named Michoacan. In "Pharmacographia" (2nd ed., p. 444) the botanical origin is said to consist, at least in part, of the thick tubers of *Ipomœa jalapa*, Pursh, (*Batatas jalapa*, Choisy), a native of Mexico and the Southern United States. It was formerly imported in thin transverse slices like jalap but larger and whiter. It seems to differ therapeutically from jalap only in being weaker. The dose is from one drachm to two or more. Jalap appears to have been introduced later, as it is distinguished by Colin, an apothecary of Lyons, in 1619, as being then newly brought to France. Both jalap and mechoacan were imported in the form of thin transverse slices; they were sometimes confounded with each other, but distinguished by those who sold them by their difference in colour, so that jalap was sometimes called black mechoacan root, and mechoacan was named white jalap. Jalap was at first imported in thin slices (Hill, "History of Materia Medica," London, 1751, p. 549). When it was found that mechoacan was a much milder purgative than jalap, it fell into disuse. The botanical source of jalap was not definitely determined until about the year 1829 ("American Journal of Medical Science," V, p. 300, pl. 1-2).

The next ingredient is evidently coarsely powdered rhubarb. Semin fœnicul dulcis indicates the long French sweet fennel. *Polypodium quercus* was the variety of polypody fern found growing on old oak trunks; it was considered to be the most efficacious. Santal citrin was the heartwood of *Santalum album*, Linn., the white wood, or alburnum, being sold as white sandalwood; this was considered inferior in quality. The syrupus rosarum solutus, syrup of pale roses, was made from the liquor left in distilling 6 lb. of damask roses, by boiling down to three pints, letting it settle for a night, decanting, adding

℥ lb. of white sugar and boiling until it weighed 8½ lb. Sal prunell. has the "s" omitted, so it is not possible to say whether ℈j. of the herb *Prunella vulgaris* was intended, but the "al" seems to indicate sal prunella. The sal prunellæ of Gray's time was prepared by melting nitre 1 lb. and injecting upon it gradually flowers of sulphur 2 oz. and pouring it into moulds, either for balls or cakes. The preparation appears in the second edition of Gray's Supplement, that of 1821.

The Electuary

℞ rad. Eringij condit. nucis moschat. condit. myrobal. condit. & corticis citri condit. aa. ʒij. conserv. rosar. rubra. flor. calendul. & flor. herb. paralyseos aa. ʒss. contus. [?] lilij convalii, betonic, & salvia aa. ʒj. pulver. de Gutteta ʒss. pulver. diamosch. dulc. aromatic. rosat. & radicis Zedoar. pulver. aa. ℈ij. cum æq. partib. syrupus cerasor. nigror. flor. pæon. maris flor. herb. paralyseos & de limonibus fiat Electuar. molle. Capiat ʒiij. mane ut directum est.

Eryngo root was sometimes candied and sold in that state; it was usually derived from *Eryngium maritimum*, but sometimes from the rarer species *Ernygium campestre*. Nutmeg fruit is met with at Singapore preserved in syrup, and is sometimes sent to this country preserved in brine from the West Indies. Only the yellow fruit of *Terminalia citrina* was sold preserved, usually in brine. (Gray's Supplement, 5th ed., p. 92.) Syrup of black cherries was made from the small black fruits of *Prunus Padus*, Linn. The male pæony is described by Lewis ("Materia Medica," 3rd ed., p. 471) as having dark green leaves, pale single red flowers, long thick roots and the stalks and pedicels streaked with red. He states that the male pæony has been generally preferred for medicinal use, but the female is the larger and more elegant and, as it is the more common, is the species that the shops have been principally supplied with. In quality there does not appear to be any material difference between the two, and hence the College of Physicians allowed the two sorts to be mixed indiscriminately. The difference between the roots, however, seems to indicate a difference of species. The salvia flowers are apparently those of *Salvia officinalis*, Linn. The directions given for making the electuary are not very clear at this distance of time.

The directions given for taking the electuary are :—

"After your Physick you must take Euery morning fasting, for two houres after, at least, three drammes or halfe an ounce of the Electuary, which is described in the other paper, drinking immediatly vpon three or foure spoonfulls of the mixture of waters, adding at that time, to sweeten it, a little of syrup of black cherryes, or of poeonys flowers, or of cowslipt flowers, with three or foure drops of spiritus salis dulcis rectificati."

Spiritus salis dulcis was prepared by adding spiritus vini rectificatus ʒvss. to spiritus salis ʒiv., and distilling ʒv. Spiritus salis was prepared by mixing common salt 1 lb., with potter's earth 3 lb., making into balls and distilling. The formula for aromaticum rosatum, which is official in the P.L. 1677, is as follows :—

Rosarum rubrarum exungulatarum ʒxv.; glycyrrihzæ rosæ ʒvij.; ligni aloes, santali citrini aa. ʒiij.; cinnamomi electi ʒv.; caryophyllorum, macis aa. ʒiiss; gummi arabici, gummi tragacanthæ aa. ʒviij.; nucis moschatæ, cardamomi majoris, galangæ aa. ʒj.; spicæ nardi Indicæ, ℈ij.; ambrægrisæ moschi aa. ℈j. Fiat pulvis s.a.

The rose petals are deprived of the basal whitish portion. The santal citrini is the heartwood of *Santalum album*. The cardamom is the *Amomum Kororima* of Pereira ("Pharmacographia," 2nd ed., p. 651). Indian spikenard is *Nardostachys Jatamansi*, D.C. The formula for Diamoschii Dulcis is given in the P.L., 1639, as follows :—

Croci, doronici sen galangæ, zedoariæ, ligni aloes, macis ana ʒij.; margaritarum albarum, serici crudi tosti, succini, corallii rubri, galliæ moschatæ, ocimi citrati ana ʒijss.; zingiberis, cubebarum, piperis longi ana ʒijss.; behen citrius que vel succedan., folii ant cinnamomi, spicæ indicæ, caryophyllorum ana ʒj.; moschi ʒij. Fiat pulvis s.a. Trochisci galliæ moschatæ were prepared as follows: Xylaloës crudæ, bonæ, electæ, partes quinque, ambræ partes duas, moschi boni partem unam, glutinis tragacanthæ et aquæ rosatæ quantum sufficit. (From the "De Re Medica" of Mesuë, 1542.) This formula was slightly altered in the P.L. 1677, the amber being increased to three parts.

The formula for pulvis de gutteta is given in Lemery's "Pharmacopée Universelle." He states that the name is taken from the patois of Languedoc. It is as follows :—

Radicis pœoniæ maris, visci quercini aa. ʒss.; cranii musquam inhumati, ungulæ alces aa. ʒiij.; seminis ocymi, seminis pæoniæ aa. ʒij.; florum betonicæ, florum tiliæ aa. ʒiv.; pulveris diambræ sine moscho ʒj.; sacchari rosati ad pondus omnium and ʒij. ʒvj.; Folia auri No. X. (Semen. ocymi is derived from the variety of *O. basilicum* with a lemon odour.)

The Mixture of Waters

℞ Aq. Scillat. [?] Verben. ʒiiij. betonic. flor. herb. paralyscos flor. Tiliæ arboris, Sambuc. & Cerasor. nigror. aa. ʒj. misce ad usum dictum.

Waters are numerous in early editions of the Pharmacopœia Londinensis. Aq. scillat. may be a misspelling of aq. destillat. The verbena used is *Verbena officinalis*, Linn., the betony is wood betony, *Stachys Betonica*.

New Books

Wall, O. A., and Sappan, L.—*Handbook of Pharmacognosy.* 9¼ in. by 6 in. Pp. 472. 25s. H. Kimpton, 263 High Holborn, London, W.C. 1. [This handbook is essentially a text for beginners in pharmacognosy, and should serve as an outline of the science. The main facts concerning drugs which a student should remember are presented, and these will form a nucleus around which he can gather and arrange further knowledge. All details which are necessary for the recognition of crude drugs are given. The book is well illustrated with sketches, which are, in most cases, of natural size and incorporate those details which may be observed with the naked eye or a simple lens. The system of classification adopted for the drugs is that of the parts of plants from which they are derived, and each group is preceded by a synopsis of its botanical characters. This arrangement makes it possible to co-ordinate the study of vegetable drugs more closely with structural botany.

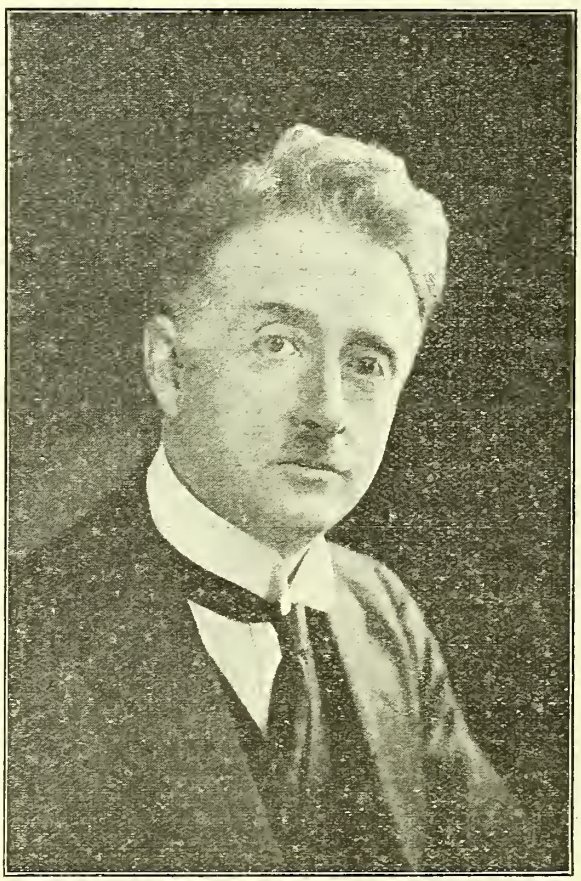
Klemperer, G., and Rost, E.—*Handbuch der allgemeinen und speziellen Arzneiverordnungslehre für Ärzte.* Fifteenth, revised edition. 10 in. by 6¾ in. Pp. 956. Marks 64. Verlag von Julius Springer, Berlin. [Described as a compendium of the art of prescribing for the use of medical practitioners, the work is intended to serve, not as a text-book, but as a work of reference, affording the fullest information regarding the composition, properties, action, applications and value of all useful medicinal agents, chiefly based on the articles included in the German pharmacopœia. The first part deals with the various galenical and pharmaceutical forms in which medicines are prepared or compounded, with notes on prescribing, as well as copious references to parallel preparations official in other pharmacopœias. It is, however, the second part of the work that is particularly interesting, since it represents the authors' endeavour to present an international codex of materia medica adapted to the requirements of medical practitioners. Official and non-official drugs, chemical compounds and galenical preparations are arranged in alphabetical order, according to the title adopted in the German pharmacopœia, or the usual (Continental) Latin designation. This title, in the case of official preparations, is followed by those under which the article appears in other pharmacopœias, then by a brief description of its origin, characters, and, where applicable, mode of preparation, chemical formula, and chief constituents, as well as details regarding action, method of administration, dosage, and therapeutic uses. Interspersed in these articles are 1,381 formulas. The third part contains the various legal enactments in force in Germany dealing with the sale of medicaments and of "secret remedies," the opium law, the pricing of prescriptions according to the official drug tariff, etc. A therapeutic index, as well as a general index, printed on coloured paper, are included in this work.]

BRITISH PHARMACEUTICAL CONFERENCE

Which is being held in Dublin this week

DUBLIN has been the venue of the British Pharmaceutical Conference on two previous occasions, in 1878 and 1901. In the former year the Conference was only in its teens, and the attendance, according to a table which someone took the trouble to draw up, numbered 147. The president on that occasion was the late Mr. G. F. Schacht, who took as the title of his presidential address "The Pharmaceutist." The vice-presidents were Professor C. R. C. Tichborne, Mr. R. Reynolds, Mr. A. W. Pring and Mr. J. Williams, the last-named of whom was at that time president of the Pharmaceutical Society of Great Britain. The local secretary was Mr. W. Hayes; the treasurer Mr. C. Ekin; and the general secretaries were Professor Attfield and Mr. F. B Benger. No fewer than twenty-eight scientific papers were presented, most of them by investigators whose names are still household words. These included Mr. A. H Allen, Mr. D. B. Dott (who is happily still with us), Mr. F. W. Fletcher (another veteran occasionally seen in pharmaceutical circles), Mr. Thomas Greenish, Mr. T. B. Groves, Mr. B. S. Proctor, Mr. W. A. Shenstone, Dr. Charles Symes and Dr. J. C. Thresh. Mr. Allen's paper gave tests for distinguishing between carbolic acid, cresylic acid and creosote, and Dr. Thresh produced a workable formula for soluble essence of ginger, then somewhat of a novelty; between these two typical subjects came papers of the usual Conference types. Not long since we gave in our "Retrospect of Fifty Years Ago" a quotation from THE CHEMIST AND DRUGGIST of September 14, 1878, instancing the warmth of Irish hospitality by a brief account of the Conference festivities. The list of members and visitors comprises the names of Mr. W. M. Allen and his father, Mr. E. J. Boileau, Mr. J. G. Boileau, Mr. S. Boyd, Mr. J. E. Brunker, Mr. S. M. Burroughs, Mr. H. Conyngham, Mr. A. W. Gerrard, Mr. Walter Hills, Dr. B. H. Paul, Mr. A. L. Savory, Dr. Aquilla Smyth, Mr. Charles Umney, Mr. W. F. Wells, Sir William Whitla, and Mr. A. C. Wootton, then Editor of THE CHEMIST AND DRUGGIST.

Looking through the record of the Conference of 1901, we recognise a modernity in the report of the proceedings extending to practically everything except the costumes of the ladies. The president at that meeting was Dr. G. Claridge Druce, then Mayor of Oxford and now a distinguished member of his University and a Fellow of the Royal Society, whose masterly review of the pharmacy and allied sciences of the nineteenth century is even now, after twenty-eight years, referred to with admiration. The vice-presidents were Mr. G. T. W. Newsholme, Mr. G. D. Beggs, Mr. Peter Boa and Professor Tichborne; the local secretary was Mr J. I. Bernard; the treasurer was Mr. J. C. Umney; and the general secretaries were Mr. W. A. H. Naylor, who retired at the close of the Conference, and Mr. Francis Ransom. The science papers presented numbered twenty-two, including contributions by Mr. F. C. J. Bird, Messrs. E. H. Farr and R. Wright, Mr. H. Wippell Gadd, Dr. J. C. McWalter, Mr. E. Savile Peck, Mr. P. E. F. Perrédès, Dr. F. B. Power, Dr. J. C. Thresh, Professor Tichborne, Messrs. T. Tyrer and C. T. Tyrer, and Mr. J. C. Umney. As on the previous occasion, social events were numerous and brilliant. Our "Who Were There" list contains the names of many who are still regular visitors to the Conference, as well as of some who have passed away; we may select for mention Mr. T. F. Abraham, Professor Attfield Mr. R. Bremridge, Mr J. E. Brunker, Mr. H. Conyngham, Mr. W. S. Conyngham, Mr. W. Cummings, Mr. W. L Currie, Sir Edward Evans, Mr. P. J. D. Fielding, Mr. W. J. Gibson, Mr. W. J. Hardy, Mr. J. Rutherford Hill, Mr. W. L. Howie, Mr. and Mrs. Irvine, Mr. Charles Kerr, Mr. R. Hinton Lake, Mr. Peter MacEwan (then Editor of THE CHEMIST AND DRUGGIST), Mr. William Mair, Mr. N. H. Martin, Mr. R. Montgomery, Mr. J. C. C. Payne, Mr. J. Phillips, Mr. R. A. Robinson, Sir Thomas Robinson, Dr. and Mrs. Charles Symes, Mr. W. P. Wane, Mr. and Mrs. W. F. Wells and Mr. E. White. With small differences in such details as the places of meeting, of feasting and of dancing, the report in our second volume for the year 1901 might almost have served for this year's proceedings; and writing before the event we have no doubt that the complete success of that year's meeting will be equalled on the present occasion.



Photo] PRESIDENT COSGRAVE *[Lafayette, Dublin*

The Official Reception

The Conference reception at the Dublin Mansion House on Monday evening was a brilliant affair. The attendance is believed to have been larger than at any similar event in the past. The visitors were received by Mr. F. J. Fitzpatrick (chairman of the Local Executive Committee and president of the Pharmaceutical Society of Ireland) and Mrs. Fitzpatrick, Mr. D. J. Nugent (vice-chairman of the Committee and vice-president of the Society) and Mrs. Nugent, Mr. J. Smith, M.C.P.S.I. (chairman of the reception committee), and Mrs. Smith. Shortly after nine o'clock President Cosgrave arrived and welcomed the members of the Conference to Ireland. President Cosgrave, who was received with enthusiasm, referred, among other matters, to the progress which has been achieved as a result of pharmaceutical gatherings, and to his interest in the Conference in that his elder brother is a licentiate of the Pharmaceutical Society of Ireland. The chairman of the Conference (Mr. R. R. Bennett) expressed in a few well-chosen words the thanks of the gathering to the president of the Irish Free State for the compliment he had paid them in being present. Everyone would agree, Mr. Bennett added, that nothing was so important as close personal contact between members of a united profession, and he was confident that the good feeling between Great Britain and Ireland would be still more strongly felt and manifested as a result of the Conference. Dancing continued to a late hour, and the spacious Round Room of the Mansion House was well filled with those who danced and with those who contented themselves with looking on.

The pharmaceutical invasion of Ireland began as early as Friday, June 21. There were arrivals from London and Brighton at the Shelbourne and other hotels, but the principal contingent crossed over by day boat on Saturday. The "Scotia" carried the chairman of the conference (Mr. R. R. Bennett), Mrs. Bennett, and their son, Mr. Herbert Skinner, Mr. John Humphrey, Mr. and Mrs. Thomas Marks, and many other well-known figures in pharmacy—official and unofficial. On Sunday morning there was a strong reinforcement from Liverpool. Everyone seems to have had an enjoyable crossing. The arrangements for receiving, helping and transporting the visitors were universally acknowledged to be excellent. At Holyhead on Saturday a telegram was awaiting Mr. Bennett from Mr. Hanna, welcoming everybody to Ireland and promising all a good time. Members of the committee called at the various hotels to make sure that everyone was comfortable, and there were tea parties, garden parties, supper parties, and general hospitality for visitors over the week-end. A letter from the president of the Pharmaceutical Society of Ireland (Mr. F. J. Fitzpatrick) was posted up in the various hotels, explaining that, owing to his having to take part in the centenary celebrations, he would be unable to call personally to welcome Conference visitors.

Lady Hosts at the Conference Reception



Photo. Mrs. D. J. Nugent Mrs. F. J. Fitzpatrick Mrs. J. Smith [Dev.

Opening Session

Tuesday Morning

Glorious weather heralded the opening session of the conference on Tuesday morning. Shortly after 10 o'clock, when the proceedings commenced, the Concert Hall of the Mansion House was filled with an audience numbering between 500 and 600. The chairman of the Conference (Mr. R. R. Bennett) presided, supported by Commissioners Seamus Murphy, W. C. Dwyer and P. J. Hernon, Mr. L. Moreton Parry (president of the Conference), Dr. G. Claridge Druce (a past-President of the Conference), Mr. Francis J. Fitzpatrick (president of the Pharmaceutical Society of Ireland), Mr. D. J. Nugent (vice-president of the Pharmaceutical Society of Ireland), Mr. A. R. Melhuish (vice-president of the Pharmaceutical Society of Great Britain), Mr. Herbert Skinner (ex-president of the Pharmaceutical Society of Great Britain), Mr. D. Lloyd Howard (a past-chairman of the Conference), Sir Thomas Robinson (treasurer of the Local Executive Committee), Mr. John Smith (Dublin), Dr. F. W. Crossley Holland (treasurer of the Conference) and Mr. H. N. Linstead (secretary of the Pharmaceutical Society of Great Britain).

The CHAIRMAN said it was a great privilege to preside over such a good gathering at the opening session. He thought it was fair to say that the Conference began last night, for they spent several enjoyable hours in that building. They were then honoured by the presence of President Cosgrave and Mrs. Cosgrave, who gave them a very gracious welcome to this warm-hearted city. (Applause.) This morning they were honoured by the presence of the Commissioners, Mr. Seamus Murphy, Dr. W. C. Dwyer, and Mr. P. J. Hernon. He called upon Commissioner Murphy to address them. (Applause.)

Civic Welcome

COMMISSIONER MURPHY said: Mr. Chairman, Ladies and Gentlemen, yesterday you were welcomed to Ireland. To-day it is my pleasure to bid you free of our Capital, to extend to you, on behalf of its citizens, the heartiest of welcomes, and to wish you individually a happy sojourn here and the fulfilment of the pleasantest of

things that summer and a holiday spirit can engender in even the most highly chemical mind.

This Dublin of ours is, I am sure, known visibly and physically to many of you. Like all cities of its antiquity it has had its glories and its falls. It still has its glories—and some new ones—and it still has an odd few kinks. But, pre-eminently, it has its heart, and it is from that that I offer you warm greetings and wish you well.

This is an admirable opportunity for me to confess that since my school days I have always known that I was an alchemist by instinct. From an early date I was irresistibly attracted at night by the mystical lure of the kaleidoscopic globes in any pharmacy window. And soon I discovered (in a dictionary, of course) that an alchemist was one whose chief pursuit was to transmute the other metals into gold and to discover the elixir of life. I felt at once that I was an alchemist by nature; and I abandoned for life all intentions of following a plough or wearing a gold-braided uniform in a theatre vestibule. (Laughter.)

How then did I fall to my present calling, you ask? An early experiment in metallurgy—conducted feverishly with an old coin, a quantity of young enthusiasm and a few incantations — seemed to convince me that the transmutation of a metal into anything like gold was likely to prove a slow and tedious process. As for the elixir of life, when it did not reveal itself to me after a full two and a half minutes of concentrated thought I turned to simpler things. (Laughter.) My conception of gold and of life has altered since that period; and I can now pay tribute to the ideals that inspire the Pharmaceutical Society.

In peaceful moments, when I recollect the terrific emanations that have come from the scientific mind in the last decade, I would be inclined to think that the members of your Society must surely be the most dangerous persons at large. (Laughter.) At other times—when my razor slips—I elevate your profession to the most salutory ranking on earth. (Laughter.) And, after all, experience in quite recent years showed me that there was a physiological affinity between even dentifrice and poison gas, for in our quaint civilisation we all like to brush our teeth before entering any engagement, however perilous. (Laughter.)

From our records I find that your first Conference in Dublin was held in the year 1878, and that you again honoured us in 1901. In the half-century which has elapsed since your first visit here, I do not know of any profession that can indicate such wonderful progress and achievement by its members. To the lay mind there is something of magic, something in the nature of the fairy tale, in the wonders recently evolved in science, chemistry and medicine. Almost have we ceased to wonder, for you have shown us that the limits of development in either branch are yet scarcely conceived. That the human race is indebted to you is as definitely true as it is that we are appalliugly at your mercy. The mighty forces which you have explored, analysed and now exploit bring us to your feet. But it is as the source of things healing, consoling and improving that we regard you, and pay homage. In your services to man, the noblest of duties have fallen to your lot, for yonrs is primarily a ministering profession. Always wanting though we are your ministering services, we have scarce kept pace with your wise provisions: and I have noticed in many things that the need is anticipated by the remedy before the defect is apparent to us at all. That, unquestionably, is the way of progress and of civilisation.

You will uow more readily realise how we appreciate your choice of Dublin as your Conference centre for this year. Equally with the inhabitants of any other city in these islands we are indebted to your skill and to your tireless questing after improvement; and you have won eternally our gratitnde for the ineffable blessiugs in yonr Pharmacopœia. From my knowledge of Mr. Frank Fitzpatrick, president of the Pharmaceutical Society of Ireland, aud from what I have heard of your president, Mr. L. Moreton Parry, and of your chairman, Mr. R. R. Bennett, I know that you are destined for safe leadiug and a good time. I can now but repeat that we give you the heartiest of welcomes to our ancient City of Dublin, and that we wish you success in your Conferences and apt rewards in their results. (Applause.)



Photo COMMISSIONER SEAMUS MURPHY [*Lafayette, Dublin*

The CHAIRMAN expressed appreciation for the compliment that the Commissioner and his colleagues had paid the Conference by their presence at that meeting. He knew that everybody had listened with the greatest pleasure and enjoyment to the address with which their proceedings had been opened. He had reminded them that their last conference was held in Dublin in 1901. There were, happily, still a few among them who spoke of the wonderful hospitality which the Conference received on that occasion. He was quite certain that this year's Confereuce would be long remembered by those who had the privilege of listening to the Commissioner's address. (Applause.) He had now the great pleasure in calling npon the president of the Pharmaceutical Society of Great Britain to convey the vote of thanks of this Conference to the Commissioners for their presence. (Applause.)

The PRESIDENT (Mr. L. Moreton Parry): We who are gathered here to-day cannot help but feel that our illusions have vanished. I had been told that the art of oratory is extinct in Ireland; bnt sitting here, facing Burke's famous statne, I cannot possibly see how Ireland can forget the art of oratory. We have had in Commissioner Murphy's address this morning a very learned welcome to Dublin. (Applause.) Not only a learned, bnt a friendly and kindly welcome which, we

much appreciate. Our illusions have vanished. We have been told that Ireland is a poor country, and some of us had a kind of idea that

"All the gold in Ballylearin is a-stickin' to the whin,
And all the crows in Ballytearin had a way of getting thin."

But my experience since coming to Dublin is that Dublin as a city and Ireland as a country are extremely prosperous. (Applause.) I assure the commissioners that from our first entry into the city we have never been more lavishly and princely entertained as we have been here in Dublin. (Applause.) I am glad to say that some forty years ago, when I was a little boy, I remember coming to Dublin, principally to commence my pharmaceutical career in Sackville Street, now called O'Connell Street; and the memories of those days are lasting, and such as I shall never forget. The Irish people, once you get to know them, are all heart. Their heads sometimes go wrong, but their hearts are always right. (Laughter) You expect to see things upside down in Ireland; but the wonderful thing is they always become right in the end, and that is the magic of the country, and really there is magic in this country. I have had, since my first visit to Ireland, dear and holy memories, for many of my old friends, pharmacists and others, are here no more. I think that it would be out of place for me to speak at any length this morning, except again to say that we are all delighted in coming here. We thank you very much from the bottom of our hearts for your civic welcome, and we feel sure that during our stay in Dublin every moment of the time will be taken up and fully provided for with every pleasure and enjoyment. We will return home to England as missioners of peace and goodwill, which must forever last between the two great nations across the Irish Sea.

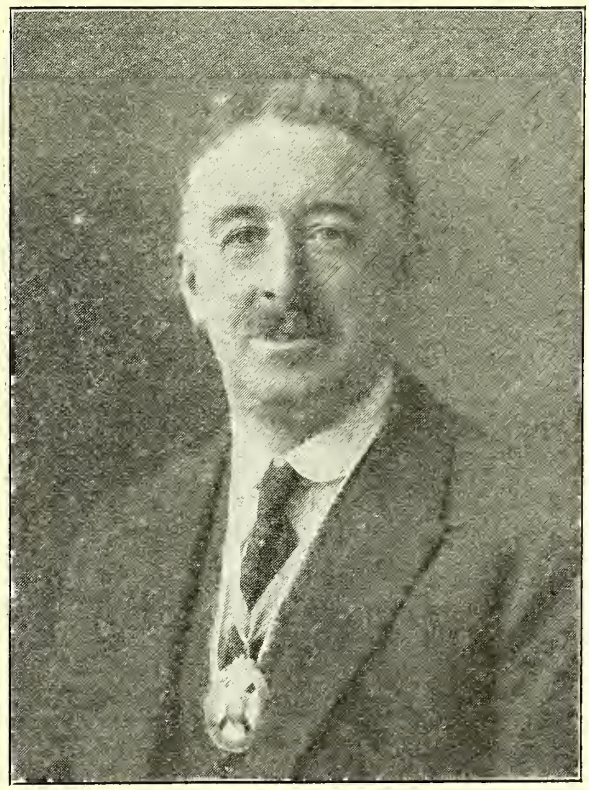


Photo [*Davis, Dublin*

MR. FRANCIS J. FITZPATRICK, P.C., PH.C.

The CHAIRMAN: I think that your acclamation indicated that this is not the occasion for a formal resolution, and therefore I shall not ask you to show your hands in the usual way, but ask you, Mr. Commissioner Murphy, and your colleagues to accept, on our own behalf and that of the members in conference here, our warmest and most grateful thanks for the welcome which you have so generously extended to our members this morning. (Applause.)

Commissioner MURPHY: I have been developing a sore throat, but I want to just say that it is a great pleasure for us to be here. At the conclusion of the speech I do not want to stand between you and your labours in front of you, except to say that I marvel at the excellence and fine gathering of your Conference, which is far greater than I anticipated. No more shall I say, except to repeat, on behalf of myself and colleagues, our deepest thanks. (Applause.)

The chairman then proceeded to deliver his address, entitled:

The Changing Foundations of Materia Medica

The full text of the chairman's address has been prepared for insertion in our extended report of the proceedings. It may be indicated, however, that Mr. Bennett gave a lucid summary of changes in prescribing from the Middle Ages to the present day, with particular reference to such recent developments as synthetic drugs, chemotherapy and organotherapy; his survey even took in work so recent as that which is being done on canine distemper. The address ended on an optimistic note with the remark that every addition to scientific knowledge serves as a stepping-stone to further discoveries.

The Conference Banquet

The chief social event, the Conference banquet, took place on Tuesday evening in the Mansion House. The members and guests were seated at small tables, which were given the names of Irish counties. The Governor-General (the Rt. Hon. James McNeill), accompanied by Mr. F. J. Fitzpatrick, was received with musical honours. After dinner, following the toast of "The King," the chairman (Mr. R. R. Bennett) proposed that of "The Governor-General and the Irish Free State." Mr. Bennett expressed the pleasure of the members at being in Dublin and helping to cement friendship between the people of Great Britain and those of the sister island. There had always been understanding and friendship between the pharmacists of the two countries, as had been manifested since the Conference members arrived. Everyone realised the importance to one another of Great Britain and Ireland. The discussion of scientific matters was one of the main functions of the Conference, but another outcome of the meeting would be more intimate association. In the course of his reply, his Excellency said the meeting was a proof of goodwill, and he relied on his presence rather rather than words to convey reciprocal feelings. Pharmacy was responsive to advances in scientific knowledge, and the scientific work of the Conference could not fail to benefit the participants and those who relied on their knowledge. He emphasised the mutual benefit of prosperous trade, and cordially welcomed visitors. The next toast, that of "The Pharmaceutical Society of Great Britain and the British Pharmaceutical Conference," was submitted by Mr. Brunker (Boilcau & Boyd, Ltd.), who expressed pleasure at the response to the invitation to visit Dublin—"dear" always, but no longer "dirty." There were over 401 cross-Channel visitors. The Pharmaceutical Society of Great Britain had passed its fourscore years, but showed no sign of decrepitude, in spite of the prominence of the commercial side. The professional side was always of supreme importance. Mr. Boileau congratulated Mr. Moreton Parry on his election to carry on the efficient work of Mr. Skinner. The Conference had steadily increased in importance since its inception. Its destinies had been in the hands of many famous pharmacists, none more so than Mr. Bennett, who was the finest figurehead imaginable. Mr. Moreton Parry, responding first to the toast, said he had had the privilege of speaking to the Governor-General (Mr. McNeill) and the Vice-President

(Mr. Blythe) of the Irish Free State, and he remembered while doing so famous Irishmen, statesmen and orators, who had spoken in that room. "Who knows," continued the speaker, "that they may be looking on to-night with wondering eyes, asking what this invasion of Englishmen means to Ireland to-day and smiling as they remember that we are here as honoured guests. The members of the Pharmaceutical Society had never wavered in their duty towards the public interest on every occasion." Mr. Moreton Parry went on to speak of recent research in the Society's Laboratories. He congratulated Dr. Hampshire upon his appointment as secretary to the Pharmacopœia Commission. This Irish visit would be the beginning of big things, as friendship would grow. The next toast, "The Pharmaceutical Society of Ireland," was proposed by Mr. A. R. Melhuish, who said that pharmaceutical legislation was in the air "all round." Exchange of views would be a benefit. The Society had gone from strength to strength during Mr. Fitzpatrick's presidency. In reply, Mr. Fitzpatrick said the visit would draw closer the links of friendship. His Society endeavoured to uphold the craft at its highest level, and to carry out the obligations of the charter. There were weak points in the Acts of 1875 and 1890 which should be amended, and they looked forward to a new pharmacy code in the Dail shortly. The membership of the Society was now at the highest point in its history. Dr. Crossley Holland, proposing "Our Visitors," said that the presence of this number of distinguished guests was evidence of their sympathetic understanding of the activities of the British Pharmaceutical Conference. It was appreciated that they had among their honoured guests the Minister of Health, because pharmacy was intimately associated with the progress of public health. Mr. Ernest Blythe (Vice-President of the Irish Free State and Health Minister) opened humorously with remarks on vitamin research, and expressed delight at the visit of the Conference. Mr. Lawman, who also replied, paid a tribute to Mr. Fitzpatrick, who had done so much to make the Conference a success. An excellent musical programme, to which Mr. Joseph O'Reilly, M.P.S.I., contributed, filled the remainder of the evening.



Photo] MR. L. MORETON PARRY *[Elliot & Fry, Ltd.*

Summaries of the Science Papers

CINCHONA FEBRIFUGE STANDARDISATION

is the subject of a brief monograph by Dr. David Hooper, who sums up, with bibliographical references, the literature of the subject.

THE DENSITIES OF SUBSTANCES USED IN SUPPOSITORIES

have been investigated by Mr. Thomas J. Smith, in order to arrive at a practical method of allowing for differences in volume caused by the presence of solids or liquids of different specific gravities.

THE MAKING OF HOLLOW SUPPOSITORIES

forms the subject of another paper by Mr. Thomas J. Smith, who has been led to modify Morgan's method on account of a difficulty in carrying it out.

THE STABILITY OF SYRUPUS

forms the subject of a monograph by Mr. W. J. Beardsley and Mr. F. J. Bolton.

THE DETERMINATION OF NITRATES IN BISMUTH CARBONATE

has been investigated by Mr. G. J. W. Ferrey, with a view to comparing the accuracy of the results obtained by the pharmacopœial process with that secured in other processes.

THE PETROLEUM SPIRIT TEST FOR CASTOR OIL

has been investigated by Messrs. T. Tusting Cocking and Sydney K. Crews, who find that the limits of the test are too wide to justify its retention.

NOTES ON THE NATIVE MATERIA MEDICA

of Ireland are contributed by Mr. M. V. Sargent, who gives interesting particulars of indigenous plants used or usable in medicine.

OBSERVATIONS ON THE ANTIMONY TRICHLORIDE COLOUR TEST FOR VITAMIN A

are presented by Mr. Norman Evers. The varying results obtained with different lots of reagents are shown.

THE VOLUMETRIC DETERMINATION OF PHOSPHORIC ACID

has been examined critically by Mr. Wilfred Smith.

EXTRACT OF GENTIAN

has engaged the attention of Mr. H. Davies, who has examined five samples.

THE GRAVIMETRIC ELECTRO-DEPOSITION OF METALS

and its application to pharmaceutical chemicals is the subject of a paper by Mr. S. Gordon Liversedge.

THE DETECTION OF PHENOLS

is the subject of four papers by Mr. Alan H. Ware.

THE ASSAY OF HYOSCYAMUS LEAVES AND EXTRACT

has been investigated by Mr. Charles M. Caines, who has experimented with various processes.

THE KEEPING PROPERTIES OF UNGUENTUM BELLADONNÆ

forms the subject of a second paper by Mr. Charles M. Caines.

THE OXIDATION OF ETHER

with particular reference to the effect of certain gases is dealt with by Messrs. F. C. Hymas and G. Middleton.

THE PHOTOCHEMICAL TESTING OF ULTRA-VIOLET RADIATION

has been studied by Mr. F. C. Hymas.

THE POTENCY OF DIGITALIS LANATA

has been investigated by Mr. Frank Wokes, who finds that it makes a considerably stronger tincture than the official plant.

TRADE NOTES AND NOVELTIES

THE advertisement section of this Special Issue includes some insets of unusual attractiveness : we may instance those of the Avenue Press, 55-57 Drury Lane, London, W.C.2, which extends to three pages, and of Stevenson & Howell, Ltd., Standard Works, Southwark Street, S.E.1. In addition, there are three subsections based on special papers which give distinction to the advertisements appearing on them. These, with their respective houses, are :—*Green and black on white imitation art paper:* Stafford Allen & Sons, Ltd.; Alfred Bishop, Ltd.; Burgoyne, Burbidges & Co., Ltd.; Cussons, Sons & Co., Ltd.; Goodall, Backhouse & Co.; Jeffreys, Miller & Co., Ltd.; Johnson & Sons (Manufacturing Chemists), Ltd.; G. King & Co., Ltd.; Robinson & Sons, Ltd.; Saville Perfumery, Ltd.; United Glass Bottle Manufacturers, Ltd.; James Woolley, Sons & Co., Ltd. *Green and red on old gold paper:* Baroux & Bion; Ford, Shapland & Co., Ltd.; J. G. Ingram & Son, Ltd.; Jules Frères, Ltd.; Lorimer-Marshall, Ltd.; Morny Frères, Ltd.; H. R. Napp, Ltd.; Edward Taylor, Ltd. The third subsection consists of eight pages of a lilac-tinted paper, and is occupied by makers of proprietaries.

BLAND'S SOLUTION.—This preparation, which is being well received, is prepared by Bland Products, Ltd., 72 Palmer Street, London, S.W.1. A complete outfit is supplied, the idea being that safety razor users are saved the trouble of drying the razor after use. All that is necessary is to place the razor in a vessel containing some of the solution and next morning it is claimed that the instrument will be sterilised ready for use and that the blade will be as sharp as ever. The accompanying illustration is of a cast available for counter display advertising. Special blades made by J. Rodgers & Sons, Ltd., Sheffield, are also offered by this firm.



T. WARD & SONS, LTD., Sheffield, have circularised the trade regarding the bonus scheme for Wardonia New Edge razor blades. Particulars will be found on another page.

PHOSFERINE HEALTH SALT.—The large family size of this new saline is now ready and particulars of adjusted window display terms, including mixed cases, will be found elsewhere in this issue.

ZIP'S PASTILLES.—The proprietors of this and other Zip specialities, Wm. Clayton, Ltd., Clayton Street, Hull, announce that an increased advertising campaign is being started and ask chemists to inspect their stocks.

GREENWICH LEMONADE is a seasonable line on which Milner & Coke, Ltd., 11 John Penn Street, London, S.E.13, are offering bonus terms.

CLOSED FOR OUTING.—The offices and works of C. J. Hewlett & Son, Ltd., manufacturing chemists, 35-42 Charlotte Street, London, E.C.2, and 83-85 Curtain Road, will be closed on Saturday, June 29, for the staff's annual outing.

BATH SALT TABLET MACHINE.—S. W. Wilkinson & Co., chemical engineers, Western Road, Leicester, invite inquiries regarding this new type of machine. Manufacturers will also be interested in the improved super speedy ointment mill.

SAMPLE OF BACK AND KIDNEY PILLS.—The Acton Pill & Tablet Co., Ltd., High Street, Acton, London, W.3, are offering a free sample half-dozen outer of their pills which show a handsome margin of profit.

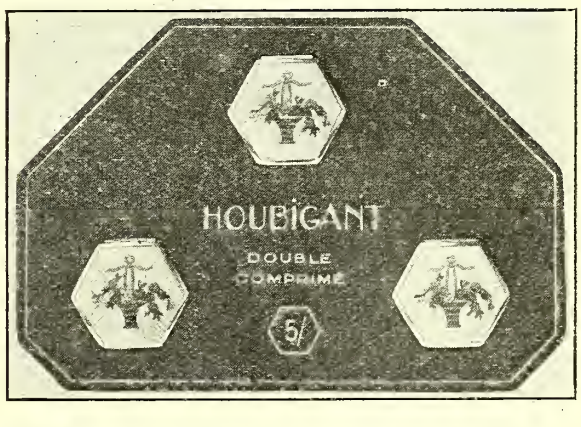
KAYBRO ANTISTING was prominent among other exhibits on the stand of Kay Bros., Ltd., Stockport, at the recent chemists' exhibition. Elsewhere in this issue the merits of the preparation are pointed out to readers together with the trade terms and the general publicity.

DRAYTON PAPER WORKS, LTD., South Park Fulham, London, S.W.6, advertise that they are manufacturers of all kinds of wrapping papers, including chemists' demy. Attention is also drawn to cartons, packets and toilet rolls, which can be supplied with own name bands if ordered in quantity.

POND'S EXTRACT CO., 103 St. John Street, London, E.C.1, announce a reduction in the prices, as from August 1, and an addition to the sizes of the recently introduced cleansing tissues.

POTTER & CLARKE, LTD., 60-64 Artillery Lane, London, E.1, and at Manchester, give particulars of many of their preparations in a coloured inset elsewhere in this issue. An interesting feature is the page dealing with essential oils produced in the laboratory which has been equipped with the most modern plant. Samples of these with quotations will be sent on request.

HOUBIGANT, LTD., Larden Road, London, W.3, have introduced a new Double Comprimé. The illustration depicts the display stand constructed to carry three articles and having a strong strut at the back. The basic groundwork of this is in deep chocolate-coloured felt with a gold border and engraved gold lettering. The hexagonal shape of the boxes lends distinction to a gold finished package with an artistic design of a floral basket on a lid with a rich yellow, spangled background. The size of the case is most convenient for the hand bag, and each contains two puffs, a full-size rouge and



powder, with a circular mirror. The double pockets are neatly arranged and the general pack is attractive and suggestive of quality.

CUXSON, GERRARD & CO., LTD., manufacturing chemists, Oldbury, near Birmingham, have just marketed two new lines. Regulol is a palatable laxative emulsion of liquid paraffin with agar-agar and is packed in 1-lb. jars. Sanoid rose carbolic tooth powder should meet the ever-popular demand for this commodity. Summer lines of interest are Lintoid socks and the Carnation corn caps.

ANACIN, which has a successful run in Canada to recommend it, has just been placed on the British market. The agent is C. C. Ertz, 23 Eagle Street, High Holborn, London, W.C.1, who will supply terms and particulars to anyone interested. The tablets contain phenacetin, aspirin, caffeine and quinine, and are described by the makers as the superfine anodyne. Extensive advertising to the public is being arranged.

Births

Notices for insertion in this column must be properly authenticated.

BALDWIN.—At Witham, on June 14, the wife of C. R. Baldwin, M.P.S., of a son.

BAYNE.—At Victoria House, Jedburgh, on June 6, the wife of Charles P. Bayne, chemist and druggist, of a daughter.

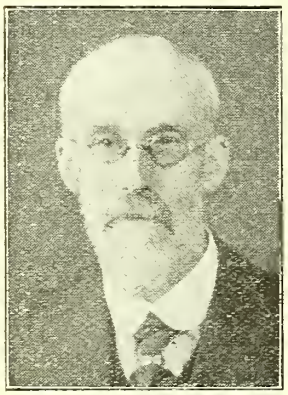
Marriages

BROCKLEHURST—HARRIS.—At Cemetary Road Baptist Church, Sheffield, on June 22, by the Rev. T. J. Whitman, Arthur Crawford Brocklehurst, M.P.S., elder son of Mr. W. T. Brocklehurst, Oakfield, Liverpool, to Cecilia Mary Harris, M.P.S., elder daugbter of Mr. F. J. Harris, 74 Montgomery Road, Sheffield.

THOMSON—HUTCHISON.—At Ayr, on June 5, John Thomson, chemist and druggist, to Janet Bryden Hutchison.

Deaths

BEVAN.—At 19 Beverley Road, Colchester, on June 15, after a long illness, Mr. William Bevan, Ph.C. (Bevan & Stooke, chemists, 124 High Street, Colchester, and 62 Church Street, Harwich), aged seventy-three. Mr. Bevan commenced business at Harwich in succession to his father, whose pharmacy was founded in 1826. The Colchester business dates back to 1750. Mr. Bevan was a member of the Essex Pharmaceutical Committee from its inception, a member of the Harwich Burial Board, and a Commissioner of Taxes. He was also a prominent freemason. Among those present in a large gathering at the funeral, which took place at Dovercourt on June 19, were the following pharmacists:—Mr. McArthur, Mr. A. W. Nunn, Ph.C., Mr. F. A. Stooke, Ph.C., and Mr. R. Woodward.



MR. W. BEVAN, PH.C.

GREAVES.—On June 14, Mr. William Asting Greaves, chemist and druggist, 53 Duckworth Street, Darwen. Mr. Greaves, who qualified in 1915, had been in failing health for some time before his death. He is survived by a widow and two children.

HAIGH.—At 16 Station Road, New Barnet, on June 19, Mr. Thomas Haigh, chemist and druggist, aged thirty-eight. Interred at Kirkburton on June 22.

JUNOR.—In Edinburgh, on June 19, suddenly, Mr. John Junor, chemist and druggist, 85 Bruntsfield Place, aged sixty-three. Mr. Junor was a native of Ross-shire, and was apprenticed at Inverness. He purchased the business of the late Mr. David Middleton, chemist and druggist, seven years ago. Mr. Junor took an active interest in pharmacy, and was much respected by his colleagues.

MOFFETT.—The funeral of the late Mr. Joseph Moffett, Ph.C., whose death was announced in our issue of June 22 (p. 748), took place at Belfast City Cemetery on June 20. The Council of the Pharmaceutical Society of Northern Ireland was represented by Mr. Fred Storey (vice-president), Mr. H. Todd, and Mr. D. L. Kirkpatrick; the North Irish Pharmacists' Association by Mr. J. C. Culbert (president), Mr. J. McDowell and others; the Ulster Retail Drug Trade Association by Mr. C. B. Abernethy (vice-president and others); the Chemists' and Druggists' Society of Ireland by Mr. Storey, Mr. S. Gibson, and several members of the Committee. Mr. W. J. Hardy (president of the Pharmaceutical Society of Northern Ireland), and Mr. John Adams (president of the Ulster Retail Drug Trade Association), who were out of town, sent telegrams of sympathy. There were many wreaths.

MOUREU.—The death is announced of Professor Charles Moureu, who held the chair of organic chemistry at the College of France, Paris, at the age of sixty-six. The whole career of Professor Moureu, until eleven years ago, was associated with the Paris Faculty of Pharmacy, where, after his student days, he became successively head of practical laboratory work in general chemistry (1894-99), assistant professor of chemistry and toxicology (1899), and finally (in 1907) Professor of Chemical Pharmacy. He was a member of the Codex Revision Committee (since 1910), of the Academy of Medicine and of the Academy of Sciences, and Grand Officer of the Legion of Honour. He specialised in organic chemistry, and the gases of mineral waters and their radioactivity was another of his subjects. In 1919 Professor Moureu delivered a notable speech in London at a dinner of the Society of Chemical Industry, which made a great impression.

POWELL.—At Hawsted, Dorking, on June 19, Mr. Arthur Crofts Powell, of the Whitefriars Glassworks, aged eighty-four.

TURNER.—On June 18, after a long illness, Mr. C. Newman Turner, 131 Shooters Hill Road, Blackheath, London, S.E.3, representative of J. L. Hatrick & Co., Ltd., 70 and 72 St. John Street, E.C.1, aged seventy. Mr. Turner was on the road for about forty years, and was well known to many pharmacists.

WALKER.—At Burnham-on-Sea, on June 15, Mr. George Bilderbeck Walker, chemist and druggist, 27 Ulundi Road, Blackheath, London, S.E.3, for many years dispenser at the Greenwich and Deptford Hospital. Mr. Walker qualified in 1890.

Personalities

DR. G. CLARIDGE DRUCE, F.R.S., presided (as vice-president) at the recent annual meeting of the Oxfordshire Archæological Society.

MR. A. LEWIS INNISS, druggists' sundriesman, Port-of-Spain, Trinidad, is on a brief visit to this country, and may be addressed at the West India Committee Rooms, 14 Trinity Square, London, E.C.3.

PROFESSOR H. V. A. BRISCOE, Armstrong College, Newcastle-upon-Tyne, has been elected to the International Commission for the Chemical Elements, in place of the late Professor T. W. Richards, Harvard University, U.S.A.

AT the Bournemouth Town Hall, on June 21, Mr. and Mrs. Arthur Mortimer and their daughter Miss Betty Mortimer were the guests of the local Liberal Association. Among those present were many local pharmacists and Sir Richard and Lady Winfrey. Dr. Walter Asten (president) took the chair and made a eulogistic speech. Mr. and Mrs. Arthur Mortimer were presented with a solid silver tea service, a silver coffee pot, and a silver dessert service; and Miss Betty Mortimer was presented with a handbag.

Information Department

INFORMATION WANTED

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated.

F/256. Diamante nail polish
N/246. "First Aid" adhesive plasters
E/256. Flaxin
B/245. Gipsy oil
S/106. Harrison's kidney and bladder pills
E/256. Hewitt's U. paste
E/256. Laxofood capsules
W/106. Lighthouse brand cotton-wool
F/196. McKenzie's kidney pills
B/186. Protectol (for sunburn)
W/246. Tonophosphan (London source)

OBSERVATIONS & REFLECTIONS

By Xrayser III

In One Respect

Ireland seems to enjoy a marked advantage over ourselves, inasmuch as that country is not yet overrun with the shops of companies constituted mainly of shareholders who are not pharmacists. Limited companies exist there, of course, but the pharmacies belonging to those corporate bodies differ in no material respect from those belonging to individuals. It will be all to the good for pharmacy as a profession if the next Irish Pharmacy Act should contain such provisions as will prevent the business from becoming the prey of speculators, with qualified managers and assistants as their economic slaves. If the business can be developed by the introduction of extra capital and more modern methods by all means let this be done; but I feel full of concern when I observe how British pharmacy is being exploited to produce dividends for capitalists who have not the slightest interest in the development of pharmacy as a profession. What profits can be made out of the practice of pharmacy should be reserved for the pharmacists who earn them, and not allowed to leak away into other channels.

Unstamped Proprietaries

for dispensing purposes are now to be available to a greater extent than formerly (*C. & D.*, June 15, p. 719), but I am not quite sure that this will be an unmixed advantage to chemists who are called upon to dispense them when ordered in prescriptions. Supposing the chemist has not got the unstamped preparation in stock when a National Health Insurance prescription is brought in and, in order to avoid delay, he dispenses from a stamped package, will he be able to recover the value of the stamp? If he not unnaturally wishes to do so, it will obviously be necessary for him to indicate on the prescription that the stamped preparation has been supplied, and he will then be dependent upon the good will of the Pricing Office. One wonders, by the way, to what extent this latest so-called concession is due to the fact that the Ministry of Health has been largely responsible for payment, out of the drug fund, of the stamp duty on proprietary medicines ordered for the use of insured persons. The position, as a matter of fact, has almost been one of the Government collecting with one hand what it paid out with the other. And that, it seems to me, may account to some extent for the granting of the concession which I am sufficiently ungrateful to be critical about. In any case, chemists will obviously have to be particularly careful if they are to obtain the benefit of the concession which they now share with doctors. Our medical friends may be congratulated upon obtaining the full value of this concession, but I cannot help feeling that we are entitled to look this gift horse in the mouth, with some doubt in our mind respecting its actual value to us.

The Interest

awakened by the bicentenary of the birth of Oliver Goldsmith in the question as to when and where he acquired his medical degree seems to have brought us within sight of some degree of certainty. In my note of last November (*C. & D.*, 1928, II, 577) I alluded to Dr. Norman Moore's attitude of belief in Goldsmith's veracity. Another well-known physician has recently published the results of his inquiries, which will do much to confirm the confidence of those who rely upon the indications provided by previous writers. Sir William Hale-White has contributed an article to the "Lancet" of June 8 with the intention of providing "a consecutive account of him [Goldsmith] as a physician." It is known that Goldsmith took his A.B. degree at Trinity College, Dublin, in 1749, and he attended some lectures on anatomy; but there is not in existence any documentary evidence that he obtained a medical degree there. Sir William gives particulars of his experiences as a medical student at Edinburgh, whither he proceeded in 1752. His name is found on the class rolls of Professor Munro as a member of the anatomy class for the sessions beginning October 1752 and October 1753. In January 1753 Goldsmith joined the Royal Medical Society of Edinburgh. A copy of his signature in the entrance book of that society is reproduced in Sir William's article (the writer expresses his indebtedness for it to Dr. J. D. Comrie of Edinburgh). After two years at Edinburgh he set out for Leyden to extend his medical studies; from there he proceeded to other European cities, visiting Louvain and Padua, at which places there were opportunities of graduating in medicine. Sir William Hale-White says that Goldsmith did not graduate at Padua, and at Louvain and Leyden the records have been destroyed. The one piece of positive evidence contained in Sir William's essay carries us back to Dublin, and is connected with the *ad eundem* M.B. conferred upon Goldsmith by Oxford University in 1769. It appeared in Jackson's "Oxford University Journal" for February 18, 1769, in these words:— "Yesterday Oliver Goldsmith, Esq., Bachelor of Physic of the University of Dublin . . . was admitted in congregation to the same degree in this University." This record was brought to light by Sir Ernest Clarke in 1914, and must be accepted as confirmatory of documents no longer extant.

There are Two Other Features

of this contribution to the biography of Goldsmith and his writings which illustrate the value attaching to critiques offered by experts in specialised branches of study. From the examination of Goldsmith's writings undertaken by Sir William it appears certain that his interest in medicine was of the slightest. "The reader will find few references to medicine, and nearly all that can be found are so vague that they might have been written by an author who was not a doctor." Another indication of his freedom from any professional obsession is the fact that there were practically no medical treatises among the books sold at his death; there were two of an antiquarian character and one written in his own day. The other matter is in the nature of a commentary upon the use made by not a few authors of his day when they want a tag to fix upon some paradoxical tragedy and apply Goldsmith's:—

"The man recover'd of the bite,
The dog it was that died."

I must quote the whole of Sir William's passage to secure the right angle from which to judge Goldsmith's aim in the "Elegy." The fear of hydrophobia in the eighteenth century was so great that "dogs were killed by hundreds. Goldsmith tried hard the humane task of alleviating the horrible fear, chiefly by pointing out that the bite of a dog often did not kill. This was true, for the dog might not be mad, and, if he were, the bite was usually harmless when through the clothes for they absorbed the poisonous saliva." What Goldsmith endeavoured to communicate was the tragedy of a dog's death due to the fears of ignorance and not a whimsical manifestation of fate. I hope this essay will appear as a separate publication, because it will be regarded as of great worth by all who love the person and admire the genius of one of the greatest ornaments of English literature.

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Editorial Articles

Our Special Issue

THE faces of Chinamen are said to look monotonously alike in the eye of the European observer; and similarly, this Special Issue of THE CHEMIST & DRUGGIST may, on a casual glance, appear to resemble its predecessors rather closely. But looking back through bound volumes of the paper for a few years past, we are struck by the variety in contents rather than by a generic likeness for which typography and lay-out are largely responsible. In one respect, indeed, we are fortunate in securing continuity between the present Special Issue and that of last year. We refer to the second of Dr. Charles Singer's "Sketches in the History of English Medicine," the first of which appeared on pages 823-832 inclusive of our Special Issue of June 30, 1928. As Dr. Singer proceeds to unfold his narrative, in the first ten pages of the photogravure section of this issue, in his easily authoritative way, the fascination of his topic becomes more and more apparent. We do not propose to detract from the pleasure of our readers by giving in this column any detailed idea of the nature of the article, contenting ourselves with citing its title: "Twilight: the Anglo-Norman Period and the Advent of the Learning of Salerno and the Arabs (13th and 14th Centuries)." We may, however, add a sentence or two on the unique illustrations accompanying the monograph. First, there are two insets reproduced in colour from manuscripts in the British Museum and in the Bibliotheca Cassanalense in Rome. The British Museum example comprises two pages from a thirteenth-century French translation from Roger of Salerno: that on the left shows an apothecary's shop, and the other consists partly of quaint operations on the head and partly of biblical scenes. The inset derived from Rome embodies several illustrations of medical and surgical practice of about the year 1250. The charm of illuminated manuscripts never palls. Secondly, there are numerous photogravure illustrations from manuscripts in the British Museum, the Bodleian, the Ashmolean, Trinity College, Cambridge, the Bibliothèque Nationale, and other sources, the existence of which is known only to relatively few experts. At the other end of the photogravure section is an illustrated article on the history of weights and measures, a subject which, we trust, will be found neither arid nor remote from the daily work of pharmacy. In compiling it we have had the valued assistance

of Professor Sir Flinders Petrie, F.R.S., Dr. Giovanni Carbonelli of Rome, Dr. E. J. Emmanuel of Athens, Professor van der Wielen of Amsterdam, Dr. Orient of Cluj, Dr. Maeder of St. Gall, and other experts, with the result that whatever may be the merit or demerit of the text, the illustrations will probably rank with any that THE CHEMIST & DRUGGIST has ever assembled on one subject. Dr. Carbonelli has further increased the interest of this issue by contributing a brief account of a private pharmacy once owned by Cardinal Fabio Chigi (who became Pope Alexander VII in 1655) and still in the possession of a descendant of this distinguished family. Some unusual specimens of pottery and other articles will be found among the illustrations to the "Note." The middle pages of the photogravure section are occupied by an illustrated article on Dublin, this year's meeting place of the British Pharmaceutical Conference, and a city of so much historical interest that we have found some difficulty in confining our remarks to the space that on such an occasion we were able to allot. With the help of King Henry II's charter, Speed's map, and other features, we have sought to treat this important city with a certain freshness, though not exhaustively. Between Dr. Carbonelli's article and the account of Dublin will be found a page of reproductions of Venetian pharmacy signs, all dating from the seventeenth century. The antiquarian side of pharmacy is to be found at its best in Mr. E. M. Holmes's "Notes on a Seventeenth-Century Prescription," in which our veteran contributor has adopted, with his own exposition, a prescription of the year 1693 lately transcribed in the "Miscellanea" of the Thoresby Society. The wholesale and manufacturing side of the drug trade receives its due share of recognition in several articles. A topic of an unusual but important kind is dealt with in a four-page survey of the soya bean industry, the cultivation, commerce and applications of which are clearly set forth. The manufacture of cotton-wool, lint, gauzes, and other dressings is described, with illustrations, in the form of a visit to the mills of Vernon & Co., Ltd., Penwortham, Preston. The magnificent headquarters of Imperial Chemical Industries, Ltd., have been visited by a special representative for the purpose of describing them from an appropriate point of view. Turning to manufacturing processes that may be adopted on either a small or a large scale, Mr. Herbert Skinner has investigated *de novo* the problem of making solidified spirit preparations, and his results as set forth throw welcome light on recognised difficulties. The perennially attractive subject of blending perfumes again receives attention from Mr. W. A. Poucher, who gives practical hints that cannot fail to instruct. Shorter articles will readily be found by consulting the table of contents on page 771. For the front of the cover we have adapted the title-page of the first edition of the Canon Medicinæ of Avicenna, "Prince of Physicians," printed by Giunta, Florence, in 1608, now in the library of the University of Padua, and specially photographed for this issue by Professor Dr. A. Castiglioni. The news of this issue has, broadly speaking, been allowed to occupy its relative position, the chief item, naturally, being our report of the opening proceedings of the British Pharmaceutical Conference (which is still in session as we go to press), illustrated with portraits. Our fuller account of the conference must necessarily be reserved for the next issue. With this indication of the contents of a Special Issue that has occasioned not less thought and care in preparation than usual, we commend it to the friendly attention of our readers all over the world.

Chemical Market Review

IN accordance with our usual practice in this our Summer Issue, we review the course of the pharmaceutical chemical trade during the first half of the year. As a whole, we find this to have been a fairly satisfactory period, both as regards a steady, if somewhat limited, flow of business and the maintenance of spot values. Business for the first three months was not at all bad, but there was a general complaint of severe price cutting, with sellers forced to shade market quotations to secure orders. At this period, spot prices for a number of the more important pharmaceutical products had reached a very low level, and it was recognised that business at such figures was unremunerative to the makers and of very little use to the merchants, so far as profits were concerned. At the end of March and early April there was a sharp and considerable advance in prices for many of the leading products. These movements were the result of an agreement between the leading Continental producers, and in the cases of some products, home makers were also parties to the arrangement to cease slaughtering prices. The fierce competition which had been going on for some years for business in this market in those products not made here, had brought values down to pre-war levels. The steadiness of the spot market, almost from the same day the much higher prices came into force was remarkable. Usually there are fair quantities of material available purchased at the cheaper rates, the holders of which are willing to unload at a good profit, but still well under the new prices. Another feature which has formerly been commonplace, but which has appeared to be of little importance this time, is the trickling in of supplies from the Continent at comparatively cheap prices. Considering the number of products concerned and the considerable increase in values, some showing over one hundred per cent. increase, the tightness of the market was surprising, and reflects the great change which has taken place during the last two or three years. Hitherto it was practically impossible to regulate and hold sale prices at agreed figures, but with supplies now limited to two or three sources, it is not particularly difficult, once agreement is reached, to control the market. A few of the more interesting movements are commented on. In January, sulphonal was quoted at 6s. 3d. per lb. In early April it was up to 10s. and 10s. 3d. on a very steady market, and has continued unchanged. Benzoic acid B.P., and with it sodium benzoate B.P., advanced a point, and the market has been well maintained by the home makers. The import of benzoic acid is prohibited, while Continental makers of sodium benzoate were over-sold. Methyl sulphonal advanced in April from 8s. 6d. and 8s. 9d. to 18s. 6d. and 20s., and for a time these prices were quoted. This product is about the only one that has not maintained the advance. Holders of old stocks were unloading at about 16s. per lb. or thereabouts, and towards the end of June supplies from one Continental source were offering at 11s. 6d. to 12s. 6d., and it seems likely the market will move down to these values. Hexamine had been the source of very keen competition during the first three months, selling in quantities at under the quoted prices of 1s. 11d. to 2s. In April the market moved up to 2s. 4d. to 2s. 6d., and has been steady at these figures, with business good. Phenacetin had reached the cheap rates of 2s. 3d. to 2s. 4d. in January, and moved up to 2s. 10d. and 2s. 11d. in April. The market has been held at these rates and a further advance is expected Phenazone was available on spot at about 3s. 6d. to 3s. 7d. for quantities in January. The price on the advance in April was

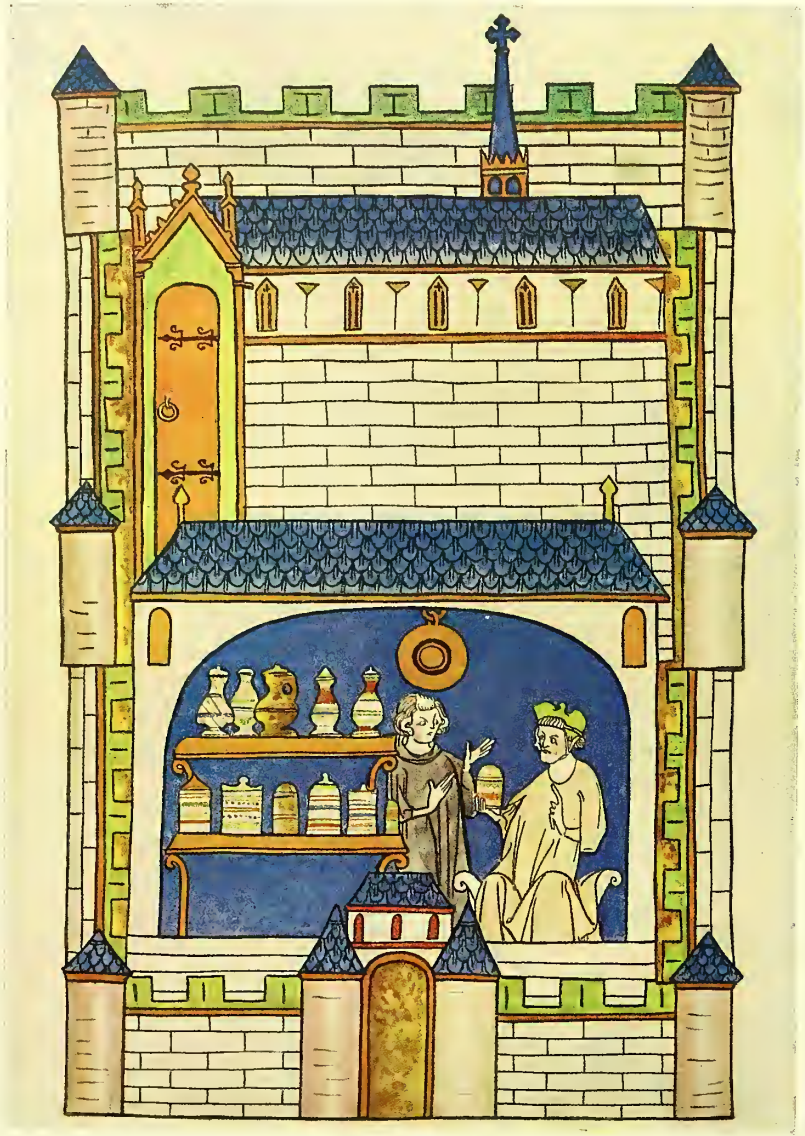
steady at 4s. to 4s. 6d., and here again still higher prices are to be looked for in the near future. Salol, a controlled article, was at 2s. 3d. to 2s. 6d., as to quantity, in the early months of the year. Two advances have brought prices up to 3s. 7½d. to 3s. 10½d. per lb., as to quantity. Early in June there were signs that barbitone, guaiacol carbonate and sodium diethylbarbiturate were likely to advance. Prices for these products are already firmer on spot and higher quotations from the Continent are expected which will affect the position here. The movement in prices of salicylates for the half year shows a general advance. The home makers hold a very strong position in this market. Salicylic acid (B.P.) was about 1s. 3d. to 1s. 6d. in January, and at the end of three months the market was firm at 1s. 5d. to 1s. 7d., and these prices are being maintained. Methyl salicylate (B.P.) was easy in January at 1s. 4d. to 1s. 6d. Prices advanced to 1s. 6d. to 1s. 8d. in April. There are occasional sellers at less, but these prices are generally maintained, both for home and Continental make. In sodium salicylate (B.P.) the market was very competitive for the first three months of the year, prices reaching a very low level. In April, both home and Continental producers advanced their prices, but at the advanced levels the home maker has a good hold on this market and has probably done the bulk of the business. In January, prices were about 1s. 6d. and 1s. 7d. for powder and crystals respectively, and even less was taken for large orders. Home makers' prices to-day, which lead the market, are at about 2s. 2d. to 2s. 4d., as to quantity. Owing to the unsatisfactory position of Continental interests who had previously done a fair share of the business, it would not be surprising to see a break in this market before the year closes. Aspirin, one of the most important items, was quoted at about 2s. 3d. to 2s. 4d. for British and 2s. 2d. to 2s. 3d. for Continental in January. Prices were advanced at the end of March with the new figures 2s. 6d. to 2s. 8d., home and Continental makes being offered at the same rates. While these prices have been maintained on quotation there is little doubt that they have been discounted almost generally for any large sized business. Here again the Continental interests are at a disadvantage, and it may lead to a revision of prices. As things are the bulk of the business is going to home makers. The movement in bromide prices has been slight and, on the six months, the market shows a slight decline. There has been considerable competition for business, and the market is none too steady at the moment, a considerable quantity of American make having been "dumped" on this market. Despite the tight control in citric acid, the price to-day is about level with that quoted in January, namely, 2s. 1½d., less 5 per cent. on spot. The shipment quotation has been steadily maintained in Italy, and attempts have been made to advance prices, but these have not materialised. It seems that a good deal of the supplies have been brought in by speculators, in anticipation of a seasonal advance in spot values, and they appear to have been forced to sell out, with the result that, so far this season, there has been a rather plentiful supply of spot goods at prices which compare very favourably with the shipment market. There is no reason to think that the pharmaceutical chemicals market will continue other than generally steady for the remainder of the year, and in some cases further advances may be expected. The possible exceptions to this general observation are methyl salicylate and sodium salicylate. It is, of course, understood that in the event of the key industries duties being removed at some time during the remainder of this year there would be a new basis for spot prices in most cases.

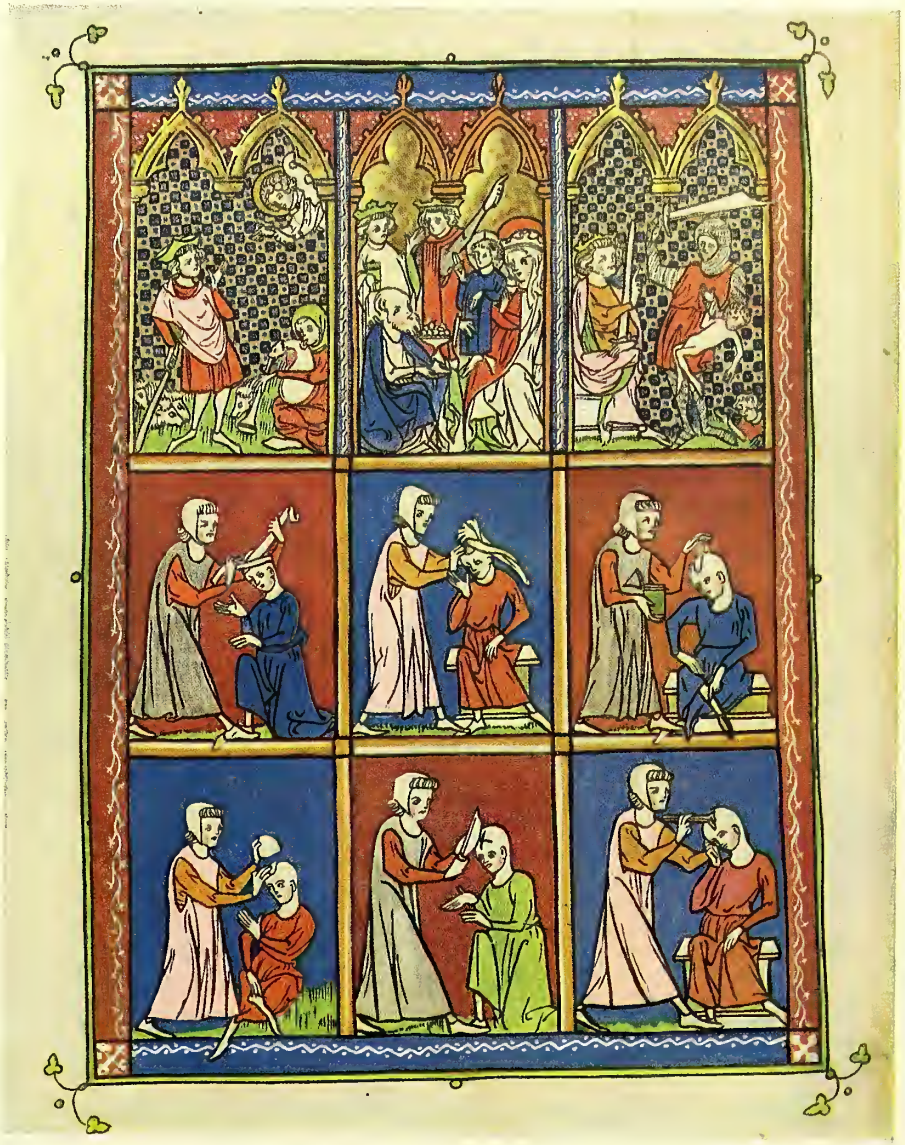
Supplying Industrial Methylated Spirits

QUERIES which reach us from time to time indicate that considerable doubt prevails among chemists as to the conditions under which they may sell or supply spirits prescribed as, or made up in, medicine; this applies especially to the sale of industrial methylated spirits on a medical or surgical order or prescription under the Statutory Rule and Order of December 1925. By paragraph 10 of that Order a duly registered pharmaceutical chemist or chemist and druggist may, on obtaining authority from the Commissioners of Customs and Excise, receive and have in his possession industrial methylated spirits for sale. No licence beyond this permission is required, but the conditions laid down in the Order have to be complied with. The most important of these are that the spirits must not be for internal use as a medicine; they may be supplied only on a written order or prescription dated and signed by a duly qualified practitioner, dentist or veterinary surgeon; and no greater quantity than one imperial pint may be supplied at a time to or for the use of one person, whether the spirits are supplied alone or as an ingredient of a preparation. When the spirits are obtained on an order, the order is required to state the purpose for which the spirits are intended to be used, and the quantity of spirits required, and the order cannot be acted upon more than seven days after the date it bears. The position created by the Statutory Order is in some respects peculiar and not easy to reconcile with our ordinary licensing law. One illustration of this deserves notice. By an Act passed in 1889, the sale of methylated spirits between the hours of 10 p.m. on Saturday and 8 a.m. on the following Monday is prohibited; and the question arises whether a chemist and druggist, duly authorised by the Commissioners under the Order of December 1925, can supply on Sundays surgical spirit or other methylated spirits on the order or prescription of a doctor. Though the question is not free from difficulties, we think that he can. In the first place, the methylated spirits referred to in the Act of 1889 mean the liquor defined as such in the Spirits Act, 1880, and could not have been intended to cover a spirit such as surgical spirit, which was then unknown to the law. Further, the restriction imposed in 1889 was clearly intended by Parliament to apply to sales of methylated spirits by licensed retailers; whereas in the case of surgical spirit the dispensing of it on an order or prescription is not a sale, but a supply by a person who is not required to hold a methylated spirit retailer's licence, but need only have the authorisation of the Commissioners of Customs and Excise. Of course if the conditions laid down in the Statutory Rule and Order were not complied with a different position would be created. If, for instance, the spirits were supplied for internal use as a beverage, this would be clearly a sale within our licensing law and not privileged under the authority the pharmaceutical chemist or chemist and druggist had obtained from the Commissioners. It must be said that the law on the whole subject sadly needs clarifying; but we shall probably have to wait for this until politicians cease to be scared by the bogy of what has been called "opening the floodgates of licensing reform."

"Pharmaceutical Formulas"

WITHOUT in any degree anticipating the indication that we propose giving in an early issue of the contents of the new "Pharmaceutical Formulas," we have pleasure in announcing that its pages are now in the hands of the binders and that the volume will be on sale in the course of a few days. We are not certain whether the delay in publishing this (the tenth) edition, in so far as it was unexpected, has caused more inconvenience to our subscribers or to ourselves; we trust that when we set forth the history of the drastic revision that the book has undergone, it will be generally agreed, not only that we are absolved from the charge of anything like undue deliberation, but also that the decision to do the work by our own method is justified by the result. The price of the volume has been fixed at 15s.





THIRTEENTH-CENTURY PHARMACY AND SURGERY IN A BRITISH MUSEUM MS.

From a 13th-century French translation of Roger of Salerno (British Museum, Sloane 1977). Left: An apothecary's shop. Right: Two lower tiers show operations on head. Upper tier shows biblical scenes: the shepherds watching their flocks by night, the adoration of the Magi, and the massacre of the innocents.

To face page 795]

The Chemist & Druggist Special Issue, June 29, 1929

SKETCHES IN THE HISTORY OF ENGLISH MEDICINE

II. Twilight: The Anglo–Norman Period and the Advent of the Learning of Salerno and the Arabs (13th & 14th Centuries)

By CHARLES SINGER, M.D., D.Litt., F.S.A.

(Lecturer in the History of Medicine in the University of London)

IN THE CHEMIST AND DRUGGIST Special Issue of June 30, 1928, we discussed medical and pharmaceutical practice in this country before the Norman Conquest. The medicine of the Anglo-Saxon period was but in small part a native product. It consisted mostly of deteriorated and disintegrated remains of late classical material. It was, in fact, Roman medicine in decay. In it had become embedded a certain amount of folk-medicine of Celtic and Teutonic origin.

The Norman conquerors of England instituted a better-ordered social system and a better-organised government, but they brought little in the way of things of the mind. Thus Anglo-Saxon medicine held its own after the Norman Conquest much as before. In fact, most of the medical manuscripts in the Anglo-Saxon language that have come down to us were written later than 1066. In a few generations Anglo-Saxon ceased to be written or spoken. It was replaced by the language known as Middle English, yet the pre-Norman medical system was still practised. Thus the Anglo-Saxon medical period continues to the end of the twelfth and even to the beginning of the thirteenth century. But though the Normans provided no new medical ideas, they opened the way for their entry. One cause of this was that French became the language of the educated classes. From the twelfth century onward England ceased, in the intellectual sense, to be an island. She had become, in effect, a part of France. Ideas flowed freely from France to England, and this fact was soon reflected in medicine.

During the twelfth century the most important centre of medical learning was at Salerno, near Naples. The place had an ancient medical tradition. From an early date, something in the nature of a medical guild was established there. The latest Anglo-Saxon medical text, which is also one of the latest specimens of the Anglo-Saxon language, is an adaptation of a Salernitan medical work which reached England through French channels. This last of the Anglo-Saxon medical works, or first of the Anglo-Norman medical works, according as we may regard it, was prepared about the year 1160. It exists in a single manuscript. It betrays its late date by a corrupt Anglo-Saxon dialect, plentifully interlarded with Latin. Its Continental character is revealed by numerous Greek words, such as were in use at the half-Greek town of Salerno, and by the introduction of the system of physiology familiar in medical circles in France. The opening sentences of this very peculiar text set forth both the earliest history of medicine in the English language and also this physiological system. The reader will like to have the passage before him :—

"Here begins the book *Peri Didaxeon* (Greek for *Of the Schools*, i.e., of Medicine), namely for how many years leechcraft was hidden and the learned leeches sagaciously sought it out.

"First came Apollo and his son Æsculapius. This Æsculapius was uncle of Hippocrates. These first sought to construct leechcraft. Some fifteen hundred years after Noah's flood, in the days of Artaxerxes, King of the Persians, they lit the lamp of leechcraft. Apollo invented the healing of men with knives, Æsculapius medicines, and Hippocrates viewing of sicknesses (i.e. *diagnosis*).

"Then came Plato and Aristotle, who said that in the human body there be four humours, to wit, phlegm in the head, blood in the breast, red bile in the inwards (an Anglo-Saxon euphemism for genital parts), and black bile in the gall bladder. Each rules in its own three months. From December 25 to March 25 phlegm waxes in the head. From then to June 25 blood waxes in the breast. From then to September 25 red bile waxes in the inwards; and from then to December 25 black bile waxes in the gall bladder. So it pleased the Lord to constitute the parts of man according to the four cardinal points."

Here we see the theory which prevailed throughout the mediæval period that the living body is made up of the four humours, Phlegm, Blood, Red Bile and Black Bile, just as the world itself is made up of the four elements Earth, Air, Fire and Water (see 1, pages 826 and 829).* Each of the four humours is associated with one of the four parts, or zones of the body, head, chest, abdomen and genital parts. Further, each part, or each humour, is associated with a season of the year and a point of the compass. Thus the body of man, the little world, the *Microcosm*, is related to the Universe, the great world, the *Macrocosm*. The association provides the essential astrological basis of mediæval medicine, the various parts of the body being related to the various planets and constellations. When we come to later centuries we shall say something of these relations between astrology and medicine.

Gilles of Corbeil, a French medical writer whose works were read in England in the twelfth and thirteenth centuries, illustrates the Norman channel of continental influence on England. Gilles was a Canon of Paris and flourished about 1200. He wrote a work on the pulse and another on urines, and these formed part of the staple knowledge of the English physicians. He borrowed his material from the works of Greek physicians which were read at the school of Salerno, where he studied. Gilles gives us a picture of the decay of the teaching at Salerno. The old-fashioned Salernitan methods were even then being replaced by the new system of Arabian medicine.

Among the last Salernitan medical writers before the advent of the Arabian system were Roger of Salerno and Roland of Parma, who are important in the history of English medicine.

*NOTE.—*References to the first sketch of this series (published in the* CHEMIST AND DRUGGIST *of June 30, 1928) are indicated thus : 1, page 825.*



FURTHER EXAMPLES FROM THE ANGLO-NORMAN COPY OF ROGER OF SALERNO'S "SURGERY"

In these illuminations from the Sloane copy of the great Salernitan work we see the English physician, about 1240, examining spear and other wounds, a glandular swelling, reducing various dislocations and discussing drugs with his assistant. See also the colour plate facing page 795.

British Museum: Sloane MS. 1977, fol. 5 and 6

Roger's great work on surgery, which was prepared about 1180, was edited by his pupil Roland, who wrote about 1230. Of them we have several superb illustrated manuscripts, among the most beautiful of their kind in existence. Roger was early translated into French. An illuminated copy of his "Chirurgia," of Anglo-Norman workmanship, was among the books of the great London physician, Sir Hans Sloane (1660-1753). These formed the nucleus of what is now the Library of the British Museum. One of the pages of this noble Roger manuscript is reproduced in the plate facing page 795 in its original colours. It displays treatment of various wounds of the head. Operations, bandaging, and application of ointments are also shown. At the top, scripture narratives are illustrated. The shepherds watching and piping to their flocks by night, the adoration of the magi and the massacre of the innocents are here seen. The other page shows one of the earliest representations known of an English pharmacy, the scene being an Anglo-Norman physician's house. From these pages we learn details of the general treatment of the sick in the thirteenth century.

Another French manuscript of Roger's work and of about the same date is at Trinity College, Cambridge. Less beautiful as a work of art, it is even more interesting as a record of medical practice in Anglo-Norman times. We reproduce figures from it illustrating the compounding of drugs by pupils under the direction of a master, a sufferer from toothache having the abscess drastically lanced, and another sufferer from acne being no less drastically fumigated!

These two Roger manuscripts give a good general view of the practice of medicine, surgery, or pharmacy in the Anglo-Norman world of the thirteenth century.

The work of Roland is represented by a number of manuscripts of English provenance. The most interesting, however, was contemporary with its author and remained long at Salerno, where Gilbert, of whom we speak later, must have studied it. This manuscript is now in a Dominican convent at Rome. It was bequeathed to that institution by Cardinal Girolamo Casanate (1620-1700), who was librarian to the Vatican. This Roland manuscript is important for the history, both of art and of costume. Its illustrations exhibit many surgical procedures that we should call modern. We show in the colour plate facing page 802 an abdominal operation and a physician bandaging a dislocated jaw. Another of our figures from the same manuscript exhibits the physician applying a live dog to a patient, through whose wounded abdomen the viscera protrude!



EARLIEST KNOWN REPRESENTATION OF ROGER BACON

On the right of Roger Bacon, the sitting figure, is a physician holding a urine glass. In the top left-hand corner another person is making a prognosis by observing the altitude of a star with a quadrant. The manuscript (Bodley 211) is of the 15th century; no contemporary or earlier representation of Roger Bacon is known.

From Singer, "Legacy of Israel"



In the five top drawings from the Cambridge manuscript of Roger, we see the physician's assistants bringing him plants they have collected; preparing drugs in mortar and by the fire (note the dog, scales, and herbs and pots on the shelves). The other three examples show somewhat similar scenes, all delightfully drawn.

PHARMACEUTICAL ILLUSTRATIONS FROM THE GREAT FRENCH MANUSCRIPT OF ROGER OF SALERNO

This manuscript, at Trinity College, Cambridge, dates from the 13th century. The selected drawings have been photographed specially for this issue. The bottom four drawings represent various lines of surgical treatment. An injured nose is inefficiently bandaged while an assistant pounds drugs. A patient presents himself with a facial abscess spreading from a decayed tooth; the abscess is also shown being lanced. A sufferer with some skin disease, probably *acne rosacea*, is given a primitive form of heat treatment. An injured eye is being treated with a salve that an attendant brings from the physician's drug store.

Trinity College, Cambridge: MS. 0.1.20

A very characteristic product of the Anglo-Norman period was the illustrated herbal. This had already been translated into Anglo-Saxon. The figures of plants in the hands of the Anglo-Saxon artist had attained a certain freedom. The Anglo-Norman artist, however, though a better craftsman than his predecessor, reduced the figures to mere formal designs. These, though technically well executed, often remind one of a modern wall-paper design rather than a living plant (*see* 1, page 829). However beautiful in themselves, we may, at least, be sure that such designs were of no value in identifying the plants that they professed to portray. The error was seldom of consequence, for very few of these plants had the efficacy ascribed to them. Indeed, the great majority were without any physiological action whatever!

The thirteenth century, into which we have now passed, was one of profound stirring of the human spirit. It was the period of building of the great cathedrals. The main structure of the beautiful cathedral churches of Canterbury and York, of Lincoln, Wells, Gloucester, Worcester, Hereford, Winchester, Peterborough, Exeter, date from then. Nor was it only churches that were builded. The imposing structure of Catholic theology and philosophy was, in the main, erected in the same century. St. Thomas Aquinas



A LINK BETWEEN ARABIC AND ENGLISH MEDICINE

Hermann, who is represented with Euclid in this English MS. of about 1250, had access to Arabic material and was, perhaps, the earliest writer on Moslem science available in England. Hermann's work appears to go back at least to 1120.
MSS. Ashmole, 304, f.2

(1225-1274) stands out as the thinker of the age. In England Roger Bacon (1214-1294), who himself wrote on medicine, was his contemporary. The great movement which these men represent had the profoundest effect on every department of human activity, and not the least upon medicine.

Much of this great activity, especially in medicine, was the result of an entirely new influence concerning which we must now say a few words. After the decay of ancient classical learning, a more distinct memory of it remained among Greek-speaking peoples in the East than was to be found in the West of Europe. In the seventh century Islam arose and during the succeeding centuries swept over the whole of the Near East. Arabic became the common language of the Orient, and the surviving medical works in Greek came to be translated into it. The Arabic-speaking world in the thirteenth century was far more powerful, more civilized and better ordered than Christendom. The map in this page of the political divisions of the Western world about 1150 shows the large part played by Islam. Sardinia and Sicily, in addition, were still influenced to an important extent by Arabic culture, although they had expelled the Moslem power in the eleventh and twelfth centuries. In Western countries there arose a desire to obtain access to the science and especially to the medicine of the world of Islam. In the effort to secure translations of Arabic medical works Englishmen took a specially prominent part. An interesting example of English connection with Moslem learning is found in a manuscript dated about 1250 in the Ashmolean Library at Oxford, a drawing from which is reproduced here. It is an English work, and portrays two figures taking the altitude of a star for purposes of prognosis (*see also* 1, page 825). One is labelled Euclidus and the other Hermannus. This Hermann had access to Arabic material. He was probably the earliest writer of the kind available to the English student of the twelfth and thirteenth centuries, and has recently been traced back in this country to about 1120. Thus Arabic medicine came particularly early to England and entirely revolutionised medical thought there.

The translations that were to have influence on Europe in general, and on England in particular, were always into Latin. To make or to obtain such translations many adventurous spirits journeyed into Spain, or sometimes into Sicily, where conditions were very similar. In both these countries Arabic was spoken. The pioneers were aided in their work by native Jews or by Mohammedans. The heretical company which they kept, together with the strange and mysterious material which they brought back with them, earned them a reputation as magicians. The memory, for instance, of Michael Scot is connected with the Black Art, and has been presented by Sir Walter Scott in his poem "The Lay of the Last Minstrel." The



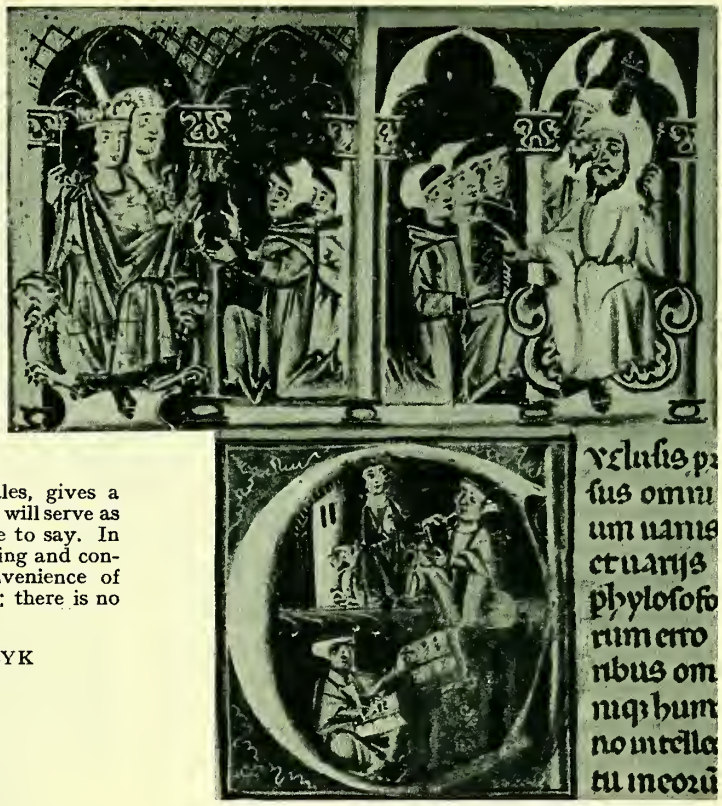
MOSLEM SPHERE OF INFLUENCE IN THE MIDDLE OF THE TWELFTH CENTURY

This map shows the dominions of Islam in Europe, North Africa, and the near East about the year 1150 A.D., the two Christian areas being shown in lighter shades. Although Sardinia and Sicily had been Christian by this date for over a century, they still remained strongly influenced by Moslem learning, as indeed did the whole of Europe, particularly in relation to medicine and the sciences.

wizard Michael Scot (died 1235) journeyed in both Spain and Sicily, learned Arabic and Hebrew, and had commerce with Mohammedans and Jews. He turned a number of Arabic works into Latin, and, in particular, he prepared important versions of the biological works of Aristotle which, though corrupt and second-hand, had much influence in determining the direction of medical thought during the Middle Ages.

Another interesting English translator was one Alfred, who about the same time as Michael went to Spain and brought back a translation of a work on plants ascribed to Aristotle. This same Alfred composed from Arabic sources a medical work "On the motion of the heart," which is perhaps the first original work on such a topic by a modern writer. It is fitting that it should be by a native of the country of William Harvey, the discoverer of the circulation of the blood.

The poet Chaucer (1340-1400), in the charming "Prologue" to his Canterbury Tales, gives a description of an English physician. The lines will serve as both a text and summary of what we have to say. In quoting them, we have modernised the spelling and constructions in a number of places. For convenience of discussion, we divide the passage into stanzas; there is no such division in the original.



FROM EAST TO WEST

These drawings from a 14th-century manuscript show a Jewish translator receiving the Arabic work of Razis from an Oriental ruler (top right), translating it into Latin (below), and presenting his translation to a European prince (top left).

Bibliothèque Nationale MSS. Latin 6192

With us there was a DOCTOUR OF PHISYK
In all the world there was none him like
To speak of phisik and of surgerye,
For he was grounded in astronomye.

He kept his patient a full great deal
In hours, by his magic natural.
Well could he fortune the ascendant
Of his images for his patient.

He knew the cause of every malady
Were it of hot or cold or moist or dry,
And where engendered and of what humour.
He was a very perfect practisour.

The cause beknown and of its harm the root
Anon he gave to the sick man his boot (remedy).
Full ready had he his apothecaries
To send him drugs and his electuaries.

Well knew he the old Esculapius
And Deiscorides and eke Rufus,
Old Ypocras, Haly and Galien,
Serapion, Razis and Avicen,
Averois, Damascien and Constantyn,
Bernard and Gatesden and Gilbertyn.

The first verse introduces us to the physician. By the fourteenth century Oxford had followed the example of the universities of Salerno, Bologna, Montpellier, and Paris, in giving a doctorate in medicine. It was a







CHAUCER AND HIS "DOCTOUR OF PHISYK"

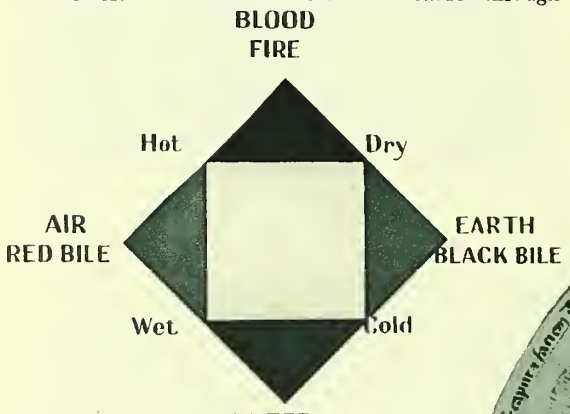
These figures (left and right), drawn in the early 14th century, are taken from the Ellesmere manuscript of Chaucer's "Canterbury Tales." As explained in the text, Chaucer throws considerable light upon the medical learning of the general practitioner of his time. As is common in mediæval representations of physicians, the "doctour" holds the inevitable urine glass, then the principal method of diagnosis. In the centre is the Occleve portrait of Chaucer which is accepted as a reputable likeness.

degree given purely for learning—what kind of learning we shall presently see. It involved no experience in practice or any direct contact with disease. It did involve, however, as Chaucer points out, a knowledge of astronomy. The different planets and constellations—especially the signs of the Zodiac—were held to have each their effect on some organ or part of the body. Thus astronomy was of primary importance to our learned physician.

The second verse displays the physician at work with his "magic natural." By this is meant his observations of nature with the object of foretelling the patient's fate. Natural magic was opposed to the black art—the process for which we now reserve the title "magic." The stanza may be paraphrased "He diligently observed his patient hourly and could forecast ('fortune') when his constellation was in the ascendant." Every one was born under a particular sign or "image" of the Zodiac. This was his "star." When his star, or image, was ascending in the heavens he was in more vigorous health and better able to endure an operation than when it was descending. Hence our expression "his star is in the ascendant."

The third stanza sets forth the doctrine of the four humours. Each was associated, as we have seen, with one of the four elements. But, further, each element was, in its turn, related to the four qualities, namely, moistness, dryness, hotness and coldness. The whole scheme may be set forth in a simple diagram.

The fourth stanza shows the physician turning to his remedies. He has discovered the cause through his



THE BODILY HUMOURS

Following the Aristotelian School all mediæval writers taught that man was constituted according to the four cardinal points with four humours, as shown in this diagram. One of Chaucer's stanzas recounts the theory.

astronomy. He has traced it to the peccant humour, and he knows whether it is hotness or coldness, moistness or dryness, that is unduly affecting that humour. He turns now to the compounder of drugs, the apothecary. This is, perhaps, the first mention in English literature of the apothecary as a person separate from the physician. The early history of the apothecary is by no means clear. Dr. Frederick Bullock, in his work "The Law Relating to Medical, Dental and Veterinary Practice" has recently worked out the beginnings of the practice of the apothecary's art in England. He tells us that as early as 1230 "Apothecaries" were known under that name at Oxford. They sprang, doubtless, from the grocers who purveyed culinary spices and sometimes served the leeches with herbs. As early as 1306, the Frenchman, Richard of Montpellier, Grocer to the King, was appointed to purvey medicines to him "as is fully enjoined by the King's Physicians." In 1345 the Grocers were incorporated by a Charter of Edward III. In that year Edward settled 6d. a day for life on one "Coursus de Gangeland, Apothecarius" for taking care of him during his illness in Scotland. John le Spicer—note the name—an apothecary who practised in Cornhill, in 1354 was accused of malpractice at the Guildhall after an inquiry by four surgeons. Falcand de Luca —an Italian—publicly sold medicines in London in 1357. In 1360 Pierre de Montpellier—another Frenchman—was appointed apothecary to Edward III. Thus by Chaucer's time the apothecaries had won a definite position. Their art, introduced from Italy and France, and especially from Montpellier, now demanded a high degree of skill.

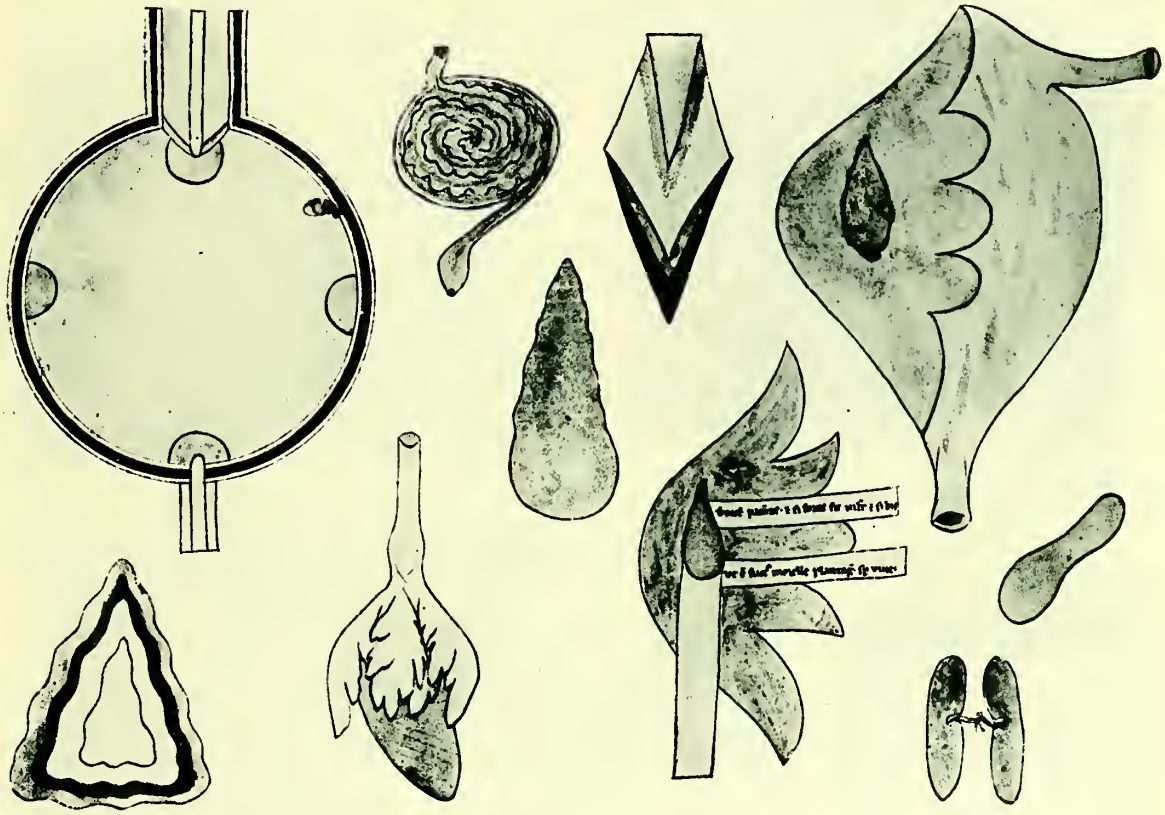
The last stanza, the most interesting of the whole passage, gives us a view of the library of the Anglo-Norman physician. Chaucer begins by saluting Æsculapius, the ancient god of medicine, and then he turns to the medical authorities of the day. Let us glance at his authorities and whence he derived them. Let us suppose that we have some of the actual volumes in our hands. First of all his books, our Anglo-Norman physician prizes his Dioscorides, and it is truly a beautiful volume. Dioscorides was an army surgeon under the Emperor Nero. He wrote and spoke Greek, and prepared in that language a drug list, arranged under remedies—mostly of the nature of herbs. The text was illustrated and translated into Latin and associated with other texts before the sixth century. The traditional texts and figures had come down to the thirteenth century. The Anglo-Norman artist who prepared the beautiful volume had, however, greatly stiffened and conventionalised the figures of the plants, as may be seen from our coloured illustrations in THE CHEMIST AND DRUGGIST, June 25, 1927, plate facing page 797.



RELATION OF THE SIGNS OF THE ZODIAC AND PLANETS TO THE BODY

Throughout the Middle Ages astrology taught, and medicine accepted, the idea that there was a close relation of the parts of the body to the twelve zodiacal signs on the one hand and the seven planets on the other. Not only the ordinary happenings of daily life, but medical treatment was subject to the planet which happened to be in ascendance. Chaucer repeats the doctrine. This is a drawing from a late 13th century manuscript illustrating these ideas.

Bibliothèque Nationale, MSS. Latin 11229, fol. 45



WHAT A FOURTEENTH CENTURY STUDENT OF ANATOMY WAS TAUGHT ABOUT HUMAN ORGANS

These delightfully ingenuous drawings of the internal organs are taken from an Oxford manuscript dating from about 1300. In the original, they are interpersed throughout the text with no pretence at scale, our reproductions being on the same relative scale as the original drawings. From left to right they represent: Top, stomach, intestines, root of heart, liver; bottom, omentum, heart, liver, kidneys, spleen; centre, gall bladder.

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The next author mentioned is Rufus. Rufus of Ephesus was an excellent physician and anatomist of the first century, contemporary with Dioscorides. He wrote in Greek. It is certain that our physician had no work by Rufus in his library. But it happens that Rufus is very frequently quoted by Razis, of whom more in a moment. Now Chaucer had dipped into Razis and has presented his physician with a non-existent Latin translation—for our English physician knows no Greek—of a work by a familiar name! Old Chaucer is displaying his learning and, for once, has been caught napping.

Ypocras is, of course, Hippocrates. Chaucer's physician had several volumes of the works of Hippocrates. He possessed in particular one little treasure—the book of "Aphorisms." Unfortunately, however, this had not been translated from the Greek, as he thought, but from the Arabic. It had been so turned by that wretched craftsman, Constantine the African, of whom also more anon.

Galen is the other Greek writer, of whose works our physician has Latin versions. Of him he possessed a work on pulses and another on urines, which he could compare with the similar and more "modern" works of Gilles de Corbeil. His main Galenic text was, however, a massive tome, the "Methodus Medendi" (Megatechne). This, too, was not direct from the Greek, but in Constantine's version from the Arabic. The vast "Megatechne" is, in effect, a dictionary of the uses of drugs. Each drug in it is classed according to its qualities, hot, cold, moist and dry, and according to one of four degrees of each of these qualities. It is not easy for the modern mind to read any reason into this complex system. Yet it stamped itself upon medical practice for centuries and deeply affected the apothecary's art.

The remainder of the library of our physician is made up partly of the works of Arabian writers—Haly, Serapion, Razis, Avicenna, Averroes, John of Damascus and Constantine, and partly of Englishmen, Bernard of Gordon, John of Gaddesden and Gilbert. Of these we shall consider the foreigners first.

By the fourteenth century, Latin translations of Arabic medical writers formed the main staple of medical practice in England. Of these the most interesting were, perhaps, the works of Constantine, the African (died 1087). This Oriental wanderer had landed in Sicily about the time of the Norman conquest of England. He attached himself to the suite of the Norman, Robert Guiscard, cousin of William the Conqueror. Salerno fell to the arms of Robert ten years after William won the battle of Hastings. Constantine became his secretary, for Robert with his large dealings with the Orient needed an Arabic-speaking interpreter. Later, Constantine, being converted to Christianity, was received as a monk at the ancient Benedictine abbey of Monte Cassino. Here he spent his remaining years, turning Arabic medical works into Latin. Among his achievements were the "Aphorisms" of Hippocrates and the "Methodus Medendi" of Galen. He was a poor Arabic scholar, and his Latin was worse than his Arabic. Moreover, in most cases he concealed the authorship of the writings that he translated. But for centuries his works were much read. They conveyed the first tidings of the Arabian system to the West in general, and to England in particular.

Of all the works mentioned by Chaucer, the most influential was the portentous Canon of Medicine of the Persian, Avicenna of Bokhara (980-1036), who died of drink thirty years before the Norman Conquest of England.



CONSTANTINE THE AFRICAN

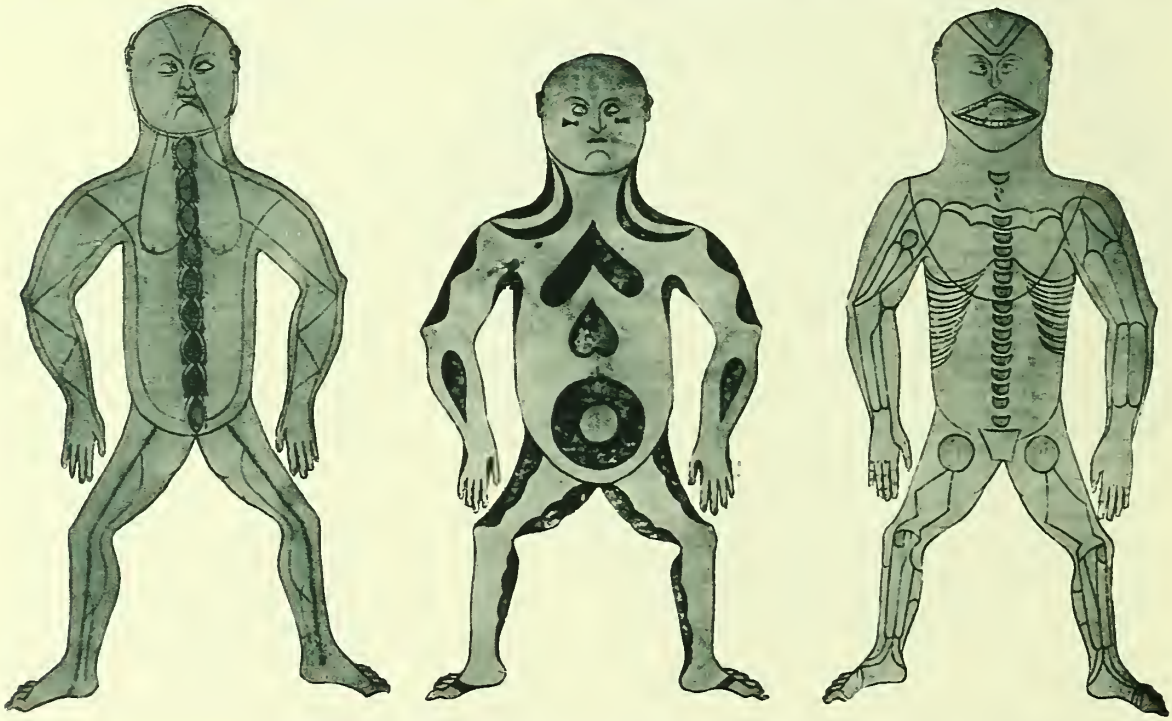
An 11th-century wanderer through the East, Constantine gathered many Arabic medical works which he translated very badly in the latter half of the 11th century. His writings, however, did much to introduce Arabic learning into England. The portrait is from an Italian manuscript of the 12th century.
MSS. Bodley 489

Avicenna was a distinguished philosopher as well as a prodigiously industrious and efficient medical compiler. He digested the whole contemporary knowledge of medicine into one enormous tome, the so-called Canon (see THE CHEMIST AND DRUGGIST, June 25, 1927, pages 807-809). This was translated into Latin in Spain toward the end of the twelfth century. Copies reached England in the thirteenth century. It became the main text-book of medicine and has been, perhaps, more read than any other medical treatise ever penned. It continued in use till well into the seventeenth century. The Canon of Avicenna was especially studied at the universities. It is thus quite appropriate that a real Doctour of Phisyk, as distinct from a mere leech, should be acquainted with it.

Similar to the history of the Canon of Avicenna is that of the works of the other Arabic medical writers mentioned by Chaucer. Damascene is John of Damascus (777-857), known to the Arabs as Jahja ibn Maseweih, and most frequently spoken of in the West as Mesuë the elder (see THE CHEMIST AND DRUGGIST, June 25, 1927, pages 806 and 808). He was the son of a Nestorian Christian apothecary and became a physician to the great public hospital at Bagdad. Razis is the Persian Abu Bekr ibn Zacharijja (860-932) of Ray, near Teheran (Razis=man of Ray), one of the most distinguished physicians of all time. Razis was the first to distinguish small-pox as a separate disease. He is also one of the founders of the scientific study of chemistry. Serapion is the Syrian Jahja ibn Serafiun, a contemporary of Razis, who compiled a work on therapeutics known as "Pandectae," the influence of which can still be traced in the British Pharmacopœia. Haly is the tenth-century Ali ibn Abbas (died 994), the "Magian"—that is, the follower of the old Persian religion now represented by the Parsees of India. This Ali wrote the best short general text-book of medicine of the Middle Ages. Averois is the twelfth-century Spanish Moor, known to the Arabs as ibn Roschd (1126-1198). This ibn Roschd, or Averroes, was a philosopher and jurist as well as a physician, and deeply influenced Christian and Jewish, as well as Mohammedan, theology in the Middle Ages.

Chaucer has thus chosen from the Arabs a very fine and discriminating list to display the erudition of his "Doctour." We may turn now to the English members, with whom he terminates his account.

Of these, the earliest is Gilbert. Chaucer uses the word "Gilbertyn" (terminal syllable long—Gilbertine). This is done, of course, to rhyme with Constantine, but the word "Gilbertine" has a definite meaning. It was the custom in the Middle Ages to speak of men's works by the feminine diminutive of their names. Thus Gilbert's book was the Gilbertina or Gilbertine, Roger's book the Rogerina —and so forth. This Gilbert (c. 1180-c. 1250) was the first



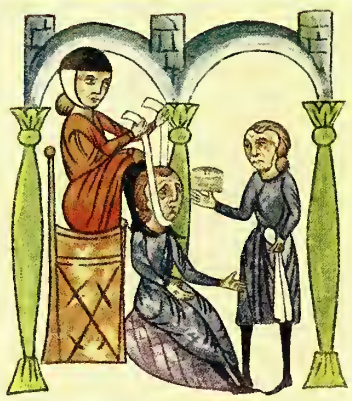
MEDIÆVAL IDEAS OF SYSTEMATIC ANATOMY

The crudity of the anatomical system on which much mediæval medicine depended is shown in these amusing drawings from a 14th-century manuscript at Oxford. The manikin on the left is drawn to show the nervous system, that in the centre the muscles, and that on the right the bones.
MSS. Ashmole 399



Hippocrates surveys a servant holding wineglass, a patient and a disciple; also anvil and furnace for making instruments.





To the left Roland lectures to students. Above he is rectifying a "dislocation of the neck." He presses the patient's shoulders down while pulling his head upwards.



Roland bleeds a patient, the standard mediæval treatment.



Roland replaces the intestines escaping from a wound by applying a live dog similarly evisccrated.



Roland operates on a rupture: note the modern position.



Roland enlarges a scalp wound to examine fracture of the skull.

FIGURES FROM A FAMOUS MANUSCRIPT OF THE "CHIRURGIA" OF ROLAND OF PARMA

This MS. is in the Bibliotheca Cassanalense at Rome. It was written about 1250 and illustrates the practice at Salerno then spreading to other centres. By the fourteenth century practice of this type had reached England.

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To face page 802

The Chemist & Druggist
Special Issue,
June 29, 1929



THE VENOUS SYSTEM

This is a complete page from the same manuscript as that from which the manikins on the opposite page have been taken. Coloured blue in the original, the veins are shown deriving mainly, though not entirely, from the heart, one important branch coming, reasonably enough, from the liver.

MSS. Ashmole 399

English physician to make a reputation on the Continent. He was educated in England and studied at Salerno, where he was, perhaps, a pupil of Roger of Parma. Later he taught in Paris and had experience in Syria, then held by the Crusaders. Gilbert produced his great "Compendium of Medicine" about 1240. It deals primarily with internal medicine, but a considerable part is devoted to surgical matters drawn from the "Chirurgia" of Roger of Salerno. In surgery, Gilbert exhibits little or no Arabic influence. On the other hand, he depends for his medical ideas on Latin versions of Arabic works, notably those of Razis, Constantine, Avicenna, Galen, Damascenus, Averroes, and others—in fact, on the same list as that set forth by Chaucer.

Gilbert's work deals with diseases in order, from the head and working downward to the feet. We may begin as he does. After describing the hair, which he tells us escapes from the body through the pores of the scalp, he deals with its proper treatment. He recommends three kinds of soaps. The base of each is a lixivium made from two parts of the ashes of burned bean-stalks and one of unslaked lime, mixed with water and strained. Of this base two parts mixed with one part of olive oil form the "Saracen soap." For the "French soap" the base is made with the ashes of chaff and bean-stalks with lime mixed with goat's fat in place of oil. The third soap can be made only during the "dog days," the heat being supplied by the sun alone! Gilbert assures us that "The adornment of the hair affords ladies the important advantages of beauty and convenience. Desiring to please their husbands, they devote themselves to adornment and protect themselves from the charge of carelessness. That our services may not be belittled and that we be not accused of ignorance, we add a few words on the subject of the dressing of the hair and the general care of the person." Gilbert advises ladies who desire to retain, or renew, their charms to soften the skin and open its pores by the use of steam baths followed by drying the surface with the finest cloths. Superfluous hair is to be removed by suitable depilatories. Colour is to be restored to the cheeks by a lotion of certain pigments in rose water. If the face is too red, it may be blanched by cyclamen root dried and powdered.

We may turn to another topic treated by Gilbert. In sea journeys he tells us that the traveller should sit with head erect, avoid looking round, maintain his head as immovable as possible, and support himself by a firm grasp upon some beam of the ship. The onus is thus laid on the patient rather than the doctor! Ships' doctors may take the hint! If vomiting ensue, the remedies suggested are of a kind that are not unlikely to produce a repetition of the offence. We spare the details. Gilbert expresses the optimistic view that the foul odours of the ship may be combatted by aromatic electuaries, "which comfort the heart, the brain and stomach." The patient should be removed to some quiet portion of the ship—if such can be found—as distant as may be from the channels for the discharge of the bilge. Short walks upon the upper deck will contribute to convalescence. Frequent changes of clothing will palliate the annoyance of fleas and lice. There were, in those days, other reasons than the motion of the ship for sickness at sea! Gilbert has some sound ideas on purity of water. He advises that for drinking purposes it be filtered through fresh, clean sand or, best of all, distilled from an alembic. Gilbert's actual prescriptions are complex and must have seldom proved efficient. It is evident that a special apothecary would have been needed



THE ARTERIAL SYSTEM

The arteries are coloured red, and the mediæval anatomist has no clear notion of how the blood gets into or out of them.

MSS. Ashmole 399

to make up some of them. It is probable, however, that before the days of independent apothecaries some physicians kept skilled assistants to do their compounding.

The second of the English writers mentioned by Chaucer is Bernard. His name is well known in mediæval medicine. Bernard of Gordon, is, however, but doubtfully of British origin. Gordon is the name of a village in Berwickshire, but also of a hamlet in the department of Aveyron in France. Certainly it was in France that Bernard spent most of his life, though no medical work was more read in England than his "Lilium Medicinæ." He became a professor at the University at Montpellier in 1285 and wrote his "Lily of Medicine" ten years later. It is a dull and ponderous compilation from the Arabic sources that we have already discussed. Its popularity cannot easily be explained. Not only was it much read in England itself, but it was translated into Irish and Gaelic, and also influenced Welsh medicine.

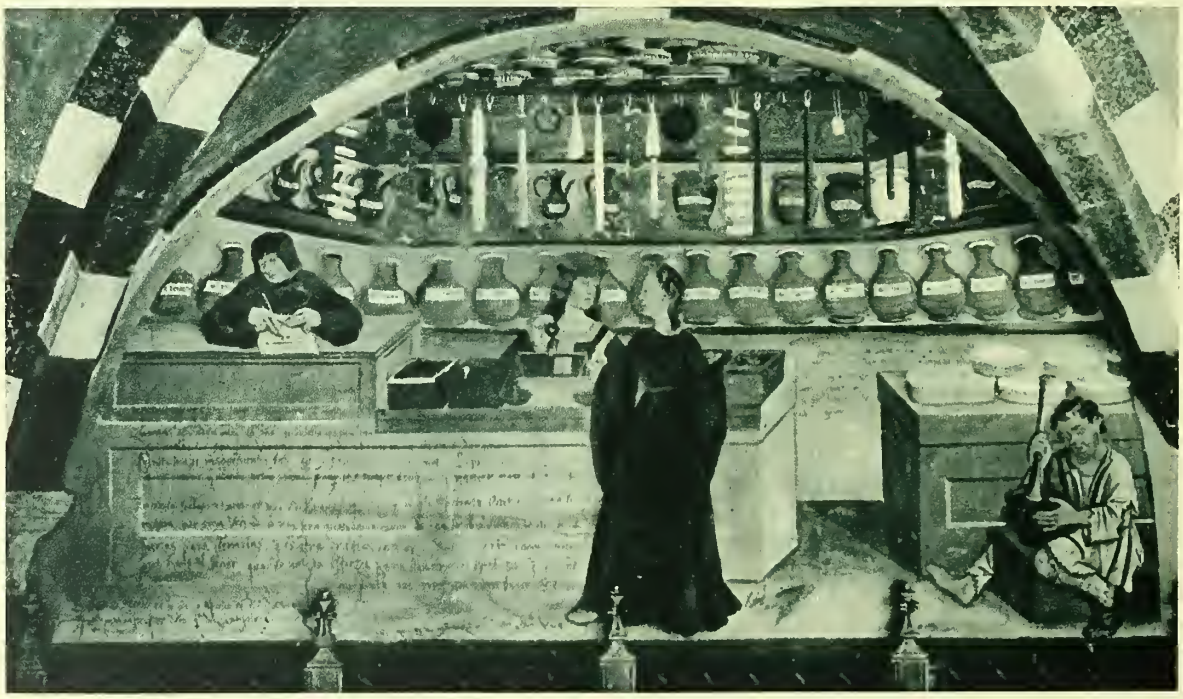
The last physician of whom we have to speak is Gatesden, that is John of Gaddesden, a village in Hertfordshire, who is the most specifically English writer of the whole list. Born about 1280 he lived till 1361. Chaucer may well have known him; indeed, it is quite likely that the "Doctour of Phisyk" is John of Gaddesden himself. Whether this be so or no, the picture would do well for him. John was educated at Oxford, where he became a member of Merton College. He began to study medicine there about 1303 and took his degree of Doctor of Medicine about 1309. He remained at Oxford at least until 1314, in which year he wrote the book by which he is known, the "Rosa Anglica." This very popular "English Rose" of Gaddesden is often contrasted with the "French Lily" of Bernard. Between them they provided an important part of medical reading in England for several centuries. To the modern nose, it must be confessed that both these blooms give forth a rather disagreeable odour. As an example of Gaddesden's material we give an extract of his section on dropsy.

"Idropisis is a watery disease inflating the body. The name is derived from 'idros,' which is water, and 'isis,' which is inflation. So Haly in the third part of the commentary on the *Tegni* says, 'subtle and watery jucies bring about watery sicknesses such as hydrops.' And it is thus defined : Hydrops is a material sickness of which the cause is a cold matter, overflowing and entering into the limbs, and thence arise either all its manifestations, or empty spaces of those organs in which is carried on the government of the food and the humour. So says Avicenna. Again he says, 'Hydrops is an error of the combining energy in the whole of the body, following on a change of the digestive energy in the liver'."

The reader has probably now had enough of Gaddesden's method of diagnosis. He will soon be more than satisfied with his treatment. We will but glance at the first passage of his "general cure."

"The cure of hydrops is of two kinds, common and proper. The proper is by means of various appropriate medicines and by local measures. The common, as says Avicenna, is by extraction of the watery humidity and its drying up, and this extraction may be carried out in four ways, as Constantine lays down in the seventh book of his Practice. The first method is by diuretic medicines which provoke a flow of urine, such as cassia and the like. The second method is to purge out the yellow fluid by means of sweating and discharge from the bowels. For this latter effect use purging drugs such as succus ireos and succus laureolæ. Emetics and clysters can also be used. Sweating can be brought about by sulphur bath or sea baths, or by suffumigations with water in which have been boiled such roots or herbs as pellitory or levisticus (*Ligusticum officinale*), together with bran: or with inunctions of hot oil, with laurel bark or a hot ointment such as arogon, agrippa, or martiation. The third method is for the patient to drink his own urine. This remedy is good not only in hydrops, but also in jaundice and in the splenetic affection.'

It will be seen that the authorities quoted by Gaddesden are Arabians, like those of Gilbert and Bernard. These three men were all physicians. At the time when they practised, the system of surgery in England was still that of Roger of Salerno. Not until towards the end of the fourteenth century did English surgery come under the Arabian influence. The Arabisation of surgery opens up a new period, with such famous names as Guy de Chauliac (1300—1368) in France and John of Arderne (died about 1390) in England. It is with this new period of surgery that we shall open our next article.



ONE OF THE OLDEST KNOWN REPRESENTATIONS OF A PHARMACY IN ITALY

A recently discovered lunette fresco in the portico of the castle of Issogne, Val d'Osta, near Turin. Published here for the first time by courtesy of Dr. Giovanni Carbonelli.

THE PRIVATE PHARMACY OF POPE ALEXANDER VII

A Note on an Interesting 16th Century Cabinet once belonging to Cardinal Fabio Chigi (Pope, 1655)

By Dr. GIOVANNI CARBONELLI

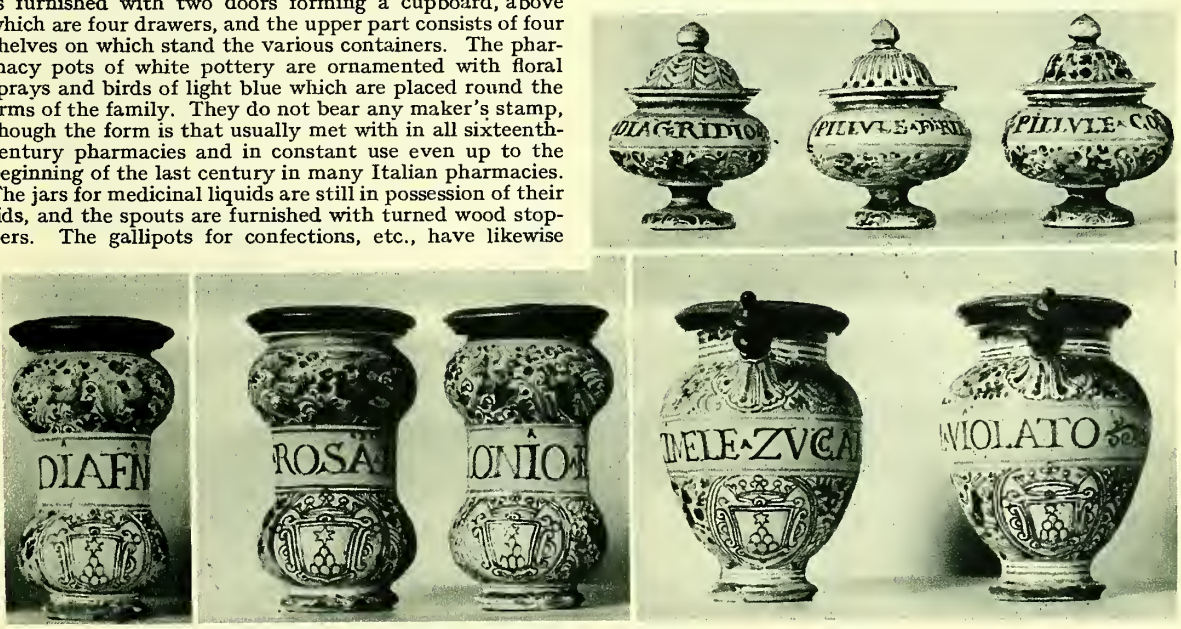
Director of the Istituto Nazionale Medico-Farmacologico, Rome

THERE is in Palazzo Chigi at Aticcia in the Alban Hills, not far from the Eternal City, an example—one of the very few which have existed up to the present day—of the small private pharmacy which members of former generations of the Italian aristocracy were accustomed to keep at their country palaces and castles to provide a supply of medicaments for the household in case of emergency. This relic, which has survived more than three centuries, is in the possession of His Excellency Prince Chigi, a descendant of the noble Italian family to which belonged Pope Alexander VII.

The pharmacy is in a recess in one of the walls in a room of the palace, and is a cabinet of carved walnut of elegant craftsmanship. It is surmounted by a sixteenth-century frieze which bears in its centre a large jar ornamented with the arms of Chigi, the frieze being terminated at each end by two similar jars. This frieze demonstrates clearly that the piece of cabinet work must have been constructed specially for the use which it had to serve. A glance at the object reveals that it is divided into two parts : the lower is furnished with two doors forming a cupboard, above which are four drawers, and the upper part consists of four shelves on which stand the various containers. The pharmacy pots of white pottery are ornamented with floral sprays and birds of light blue which are placed round the arms of the family. They do not bear any maker's stamp, though the form is that usually met with in all sixteenth-century pharmacies and in constant use even up to the beginning of the last century in many Italian pharmacies. The jars for medicinal liquids are still in possession of their lids, and the spouts are furnished with turned wood stoppers. The gallipots for confections, etc., have likewise retained their wooden covers. The pill-boxes are remarkable for their beautiful shape (which is not at all common) and for the ornamentation, which differs in each one, as seen in the photograph below.

A number of small glass jars have wide mouths closed with parchment. The glass bottles are of two sizes, rectangular and with stoppers made of pewter. The names of the medicaments are written by hand on paper which is let into the bottle and shaded with ink in such a manner as to give the appearance of a spiral. Accompanying the pharmacy pots are two pewter jars of equal size, one bearing the inscription "Mitridato" in Italian and the other the Latin "Theriaca," both having lids surmounted with the eight-pointed star of the Chigi arms. This is of bronze and shows traces of gilding, certain proof that the two jars were specially made for the little pharmacy. They are of small capacity, being only 14 cm. in height, but are quite in keeping with the other containers of old pharmacies (see next page).

The pharmaceutical apparatus necessary for the compounding of medicines is not extensive, because the greater



POPE ALEXANDER'S BEAUTIFUL PHARMACY POTS, JARS AND PILL BOXES

Both the pharmacy pots (left) and the jars for liquors with their stoppered spouts (right) bear the arms of the Chigi family to which Pope Alexander VII belonged. The pill boxes (above, right) are finely ornamented and unusual in shape.

Photographs by courtesy of Dr. Carbonelli

part of the preparations were probably bought ready for use. Those pieces of apparatus noted in an old inventory are : a mortar of bronze, a balance with weights, a metal dish, a colander, two filter-bags, three spatulas, a pan. Of this collection there remains to-day only two spatulas (one of which is broken) and the balance (without weights), the rest having disappeared.

The loss of these small objects is largely balanced by the presence of two others which are not listed in the old inventory. One is a wooden block with a mallet on which roots, etc., were pounded and broken, formed out of a cylindrical block of wood, 74 cm. high and 14 cm. in maximum diameter, its fragility on account of the attacks of worms and decay rendering its preservation the more remarkable. The other object not in the inventory is an antimony cup (see below). The marvellous virtues of this cup are explained in a printed leaflet, from which one learns "the mode of using the perfected purgative cup and its virtues which are those described by the alchemists and attributed to potable gold and the Philosopher's Stone." The use of the cup is as follows : it is filled with white wine and left for twenty-four hours in winter and twenty hours in summer—kept well covered, after which time the wine is drunk on an empty stomach; after two hours some soup is taken and the action is manifested by vomitings and other symptoms. If the sick person is of too weak a constitution and the remedy too potent in action, the wine can be mixed with soup, syrup of capillaire or rose, lemon liquor or pulverised sugar. The wine thus prepared is useful in every kind of hæmorrhage, bloody fluxes and jaundice : applied to wounds and sores it cures the plague, cancer, madness, ulcers of the legs and itch. Drunk once every week it cures the falling sickness, hypochondria, melancholy, impurity of the belly, colic pains and the pox. One can use this wine also for clysters if mixed with thick soup, and in this case it is the only remedy for tertian, quartian or intermittent fevers; for continued fevers it is essential to use soup, dew or rain-water instead of the wine and drink the infusion at the commencement of the sickness. Administered by the mouth or as a clyster it is sovereign against retention of urine and worms : if aqua vitæ is used instead of wine it cures leprosy and internal suppuration. It is also the best eye-water : however, if in the course of time the virtues of the cup are lost, if the cup is broken up the virtue will pass in the fragments. A similar cup was published and described in THE CHEMIST AND DRUGGIST of June 25, 1927.

The miraculous virtues of the antimony cup are the same attributed by the alchemists to the universal panacea, sought for in vain for centuries. The example in possession of Prince Chigi, which appears to be of the middle of the seventeenth century, proves the persistence of the superstition of the miraculous elixir of long life. The rarity of the object not only increases the historic importance of the pharmacy but at the same time arouses curiosity to know who it might have been who had used the cup to cure the ills of the flesh.

The little pharmacy is called in the Chigi household "La farmacia del Papa" (the pharmacy of the Pope); something more than mere tradition must have originated that designation, and the lack of the Papal insignia in the arms painted on the jars in no way prevents the belief that this is the case. The pharmacy existed in the household before ever one of its members ascended the chair of Peter; this was Cardinal Fabio Chigi, who reigned as Pope under the title of Alexander VII. The inventory of the drugs and medicines still in existence is written at the time of the Cardinal, as the characters plainly prove. The cup or dish and the chopping block for vegetable drugs were added afterwards to the pharmacy and were not enumerated in the catalogue when Cardinal Fabio Chigi was made Pope (April 7, 1655). The biography of Alexander VII describes the vesical and prostatic suffering of the Grand Pontiff; it is more than probable that after having tried in vain the "legno nefritico" and the elixir vitæ, and being tormented by the use of other remedies, he might have wished to try the antimony cup.

Practically the Chigi pharmacy underwent the lot of many others of its class, the disappearance of the galenical pharmacopœia signalising the end of its service. However much it has been shorn of its contents, it still remains a rare and precious relic in the story of pharmacy. The jars and other containers which remain demonstrate their kind and quality. A description of the pharmacy is due to the courtesy of Prince Chigi.



ITEMS OF UNUSUAL INTEREST FROM THE SIXTEENTH CENTURY CHIGI CABINET

Here are (left) a wooden pillar on top of which roots were pounded. (Centre) two pewter pots for theriac and mithridate surmounted by the Chigi star in bronze gilt. (Centre, above) an antimony cup of wondrous virtue; (right) two glass bottles with pewter tops and one glass jar with parchment cover—these and the small bottle above the antimony cup have spiral-shaped paper labels let into the glass.

Photographs by courtesy of Dr. Carbonelli

17th Century Pharmacy Signs in Venice



The Sign of the Archangel Michael



The Sign of the Redeemer



Mixed Sign, including Archangel, Siren, Tower, Lemon, Doves, and Twins



Sign of the Dogaressa, i.e. the wife of the Doge

Photographs by courtesy of Dr. G. Carbonelli



O'Connell Street, previously known as Sackville Street, Dublin's best and widest street, showing the O'Connell Monument and the Nelson Pillar



The Bank of Ireland at College Green, an 18th century architectural masterpiece

SCENES IN THE HEART OF THE FREE STATE CAPITAL

Photos, "Irish Times" and Wm. Lawrence

DUBLIN, THE EYE OF IRELAND

Notes on Pharmaceutical and Medical Aspects of the History of the Irish Host City of the British Pharmaceutical Conference

(Illustrated with Photographs by William Lawrence)

DUBLIN is a city not easily summed up in an epigram. Everyone has heard of "dear, dirty Dublin"—a characterisation that on the face of it may well be regarded as half a libel, all cities having their share of dirt. Actually, the historical interest of the capital of the Irish Free State is much too comprehensive to be fitted into a phrase, however neat. Let us dip into the discursive Holinshed's second volume of Chronicles (1586) :—

"Dublin the beautie and eie of Ireland, hath becne named by Ptolome, in ancient time, Eblana. Some terme it Dublina, others Dublinia, manie write it Dublinum, authors of better skill name it Dublinium. The Irish call it, Ballée er Cleagh, that is, a towne planted vpon hurdels. For the common opinion is, that the plot vpon which the ciuitie is builded, hath beene a marish ground; and for that by the art or inuention of the first founder, the water could not be voided, he was forced to fasten the quakemire with hurdels, and vpon them to build the citie. I heard of some that came of building of houses to this foundation: and other hold opinion that if a cart or waine run with a round and maine pase through a street called the high street, the houses on ech side shall be perceiued to shake."

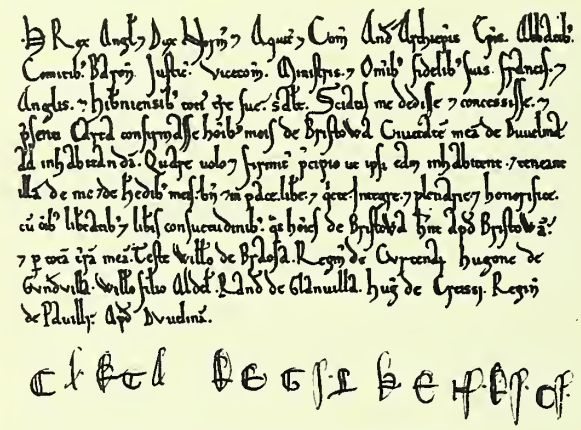
Coming to more modern times, the anonymous author of "A Description of the City of Dublin," which was published in London in 1732, remarks that the city is "the largest and most populous City in the Imperial Dominions of Great Britain, excepting the City of London. . . . In the streets are plying two hundred Hackney Coaches, and as many Chairs for Hire. . . ."

A few years later, Watson's "Gentleman and Citizen's Almanack" for the year 1765 contains the information that a chairman is to receive 3s. for a day, and, if hired by the hour, "twelve pence for the first Hour, six Pence for every Hour after, and six Pence for setting down any Person in any Place of the City or Liberties." The city, it is evident, was well "in the movement "of the eighteenth century. But let us try to gather an outline of the earlier history of this fascinating capital.

Every historian goes back to Ptolemy, the geographer and astronomer, who in the second century A.D. gave the city the name of Eblana Civitas. The presumption is that it must at that time have been a conspicuous trading centre. The name "Dublin" is generally interpreted as the equivalent of "black water" or "black pool," in reference to the peaty bed of the River Liffey, which divides the city into two nearly equal parts and is crossed by twelve bridges. The official name is now Baile Atha Cliath. The city, with its charming bay, lies seventy miles west of Holyhead; to the north the country is flat, but on the south the Wicklow hills are practically in contact with the city. We do not propose to follow, century by century, the sequence of plot and counterplot that Dublin shared in common with many other cities and areas. Let it suffice to mention that in 1173 Henry II granted to the city a charter, a facsimile of which will be found as one of the illustrations of this article; that in 1210 King John built a bridge; that Cromwell and James II used the city for their own military purposes; and that in 1724 we reach something like modernity with the issue of John Watson's "Almanack," an annual publication in which was incorporated a directory, incomplete, no doubt, as many eighteenth-century directories are, but still of great interest for the light it throws on the business and social conditions of its day. Taking the issue for the year 1752, we find on a casual examination the names of William Aldworth, Barton & French, John Forbes, Marmion Savage, George Wilson (a predecessor of Boileau & Boyd, Ltd.), and James Woodroffe, all of whom are described as druggists. The first three of these firms carried on business in Blind Quay; so far as we have been able to trace, Pill Lane, in spite of its name, did not contain a representative of the drug trade. One entry in Watson's directory for 1765 is of an uncommon type: "Wilson, William, Bookseller, and Importer of Hill's and Ward's Medicines, James's Powders, Turner's Ether, Anderson's Pills, and other genuine Remedies in Ireland, at Peter Wilson's, Dame Street." Standing as it does on the border line between information and advertisement, one wonders whether it was inserted on ordinary or special terms. There were other methods of advertising. A broadside issued by a Dr. Petit, "Professor of Physic and Surgery," 94 Grafton Street, in or about the year 1778 contained no fewer than nineteen testimonials, prefaced by the statement that he was "obliged (with regret) to publish the following Certificates and Affidavits."

Mention of the eighteenth century brings to mind some of the great names associated with Dublin in that resplendent period. A volume might be written on this topic without treating it exhaustively; but it must suffice for our present purpose to mention a few of these names without any attempt at estimating the special value of their life-work. Jonathan Swift ushered in the century by taking his Doctor of Divinity degree in Dublin in 1701; and Richard Steele, who was his junior by five years, was, like Swift, a native of the city, though his eventual connection with it was of the slightest. The birthplace of Richard Brinsley Sheridan, too, has been identified; and in his case early removal from the city may be said to be balanced by the longer residence of his father and grandfather, who between them accounted for about half a century's work, the grandfather as schoolmaster and the father as actor and impresario. Edmund Burke was the son of a Dublin attorney and graduated at Trinity College. Oliver Goldsmith entered the same college in 1744, and after several vicissitudes of fortune obtained his Bachelor of Arts degree five years later. Henry Grattan was another graduate of Trinity, and his father represented the city in Parliament for five years at the same time as the well-known Dr. Charles Lucas. Laurence Sterne had more than one period of residence in the city in early life. Thomas Prior, founder of the Dublin Society, wrote, at the time of the tar-water craze, "An Authentic Narrative of the Success of Tar-water, in curing a great number and variety of distempers." In Merrion Square lived Sir William Wilde, a popular physician and father of Oscar Wilde, Sir William Stokes, another famous physician, Daniel O'Connell, patriot and orator, and Sir Philip Crampton, an eminent surgeon. Dublin has been called "the City of Statues," on account of the selection

of that form of memorial to commemorate many of its citizens. Handel, though not an Irishman, produced his "Messiah," by common consent his greatest oratorio, in the city, for the benefit of a charitable society, in 1742.

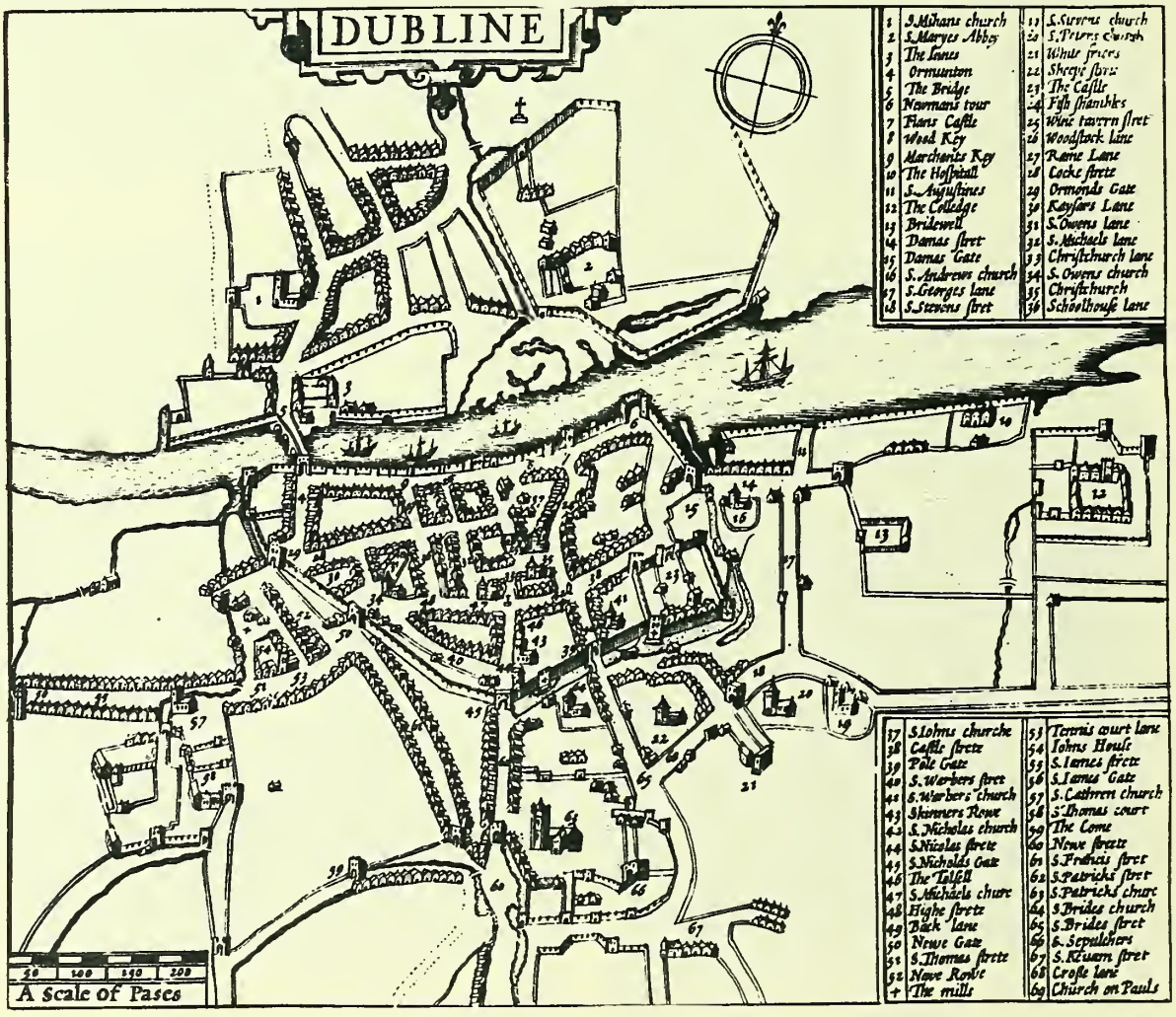


DUBLIN'S ORIGINAL CHARTER

Facsimile from the City Archives of the charter granted by Henry II in 1173. The large lettering at the bottom is an endorsement—"Charta Regis Henrici."

IRELAND has for something like a century shown great and probably unequalled enterprise in holding exhibitions. So long ago as 1829 the desirability of such displays was discussed in the Dublin Press. In 1834, and again in 1847, displays of Irish manufactures were held in Dublin and proved highly successful. In 1850 the Council of the Royal Dublin Society organised an International exhibition, which, if not on so large a scale as the London one held in the following year, obtained priority in point of time.

An Irish Industrial Exhibition was held in 1853, when a piece of ground abutting on Merrion Square, and belonging to the Royal Dublin Society, was covered with a temporary structure. The exhibition had a section devoted to chemical and pharmaceutical preparations; the exhibitors included such well-known names as the Apothecaries' Hall of Ireland, Boileau Brothers, John George Boileau & Co., Boyd & Goodwin, Samuel Boyd, Sir J. Murray, M.D., T. & H. Smith, and Peter Squire. A guide to the city issued in the same year contains a two-page advertisement of Butler's Medical Hall, Lower Sackville Street, which was opened in 1817 "in connexion with the Establishment at No. 4, Cheapside, corner of St. Paul's, London:" the shop windows shown in the accompanying illustration are filled with fifteen carboys and an equal number of specie jars. It is of interest to note that in the photograph of the same shop front reproduced in THE CHEMIST AND DRUGGIST, 1901, II, 128, fifteen carboys are still to be seen, though the specie jars have been



AN EARLY 17th CENTURY PLAN OF DUBLIN BY JOHN SPEED



The Headquarters of the College of Surgeons



The Medical School, Trinity College



The new buildings of the National University (University College)



Campanile in the Quadrangle of Trinity College. Chapel, dining-hall and the Graduates' Memorial Hall are on the left.

NEW AND ANCIENT HOMES OF MEDICINE AND LEARNING

reduced to eight. The only other advertiser in this Guide in the retail drug trade, so far as we have ascertained, is Mr. P. T. Bermingham, chemist and druggist, Westland Row. So great was the interest taken in the collection of paintings brought together at the Exhibition of 1853 that a suggestion of establishing a National Gallery arose. Donations were sent by several lovers of art, and from the fund raised by this and other means a gallery was erected at a cost of £30,000, was opened in 1864, and was added to in 1903. The collection now consists of more than 2,000 examples of ancient and modern art.

In 1865 an International Exhibition was held on a site adjoining St. Stephen's Green; this was opened by the Prince of Wales (afterwards King Edward VII), and the catalogue contains the names of many manufacturers who are still well known. As in 1853, the Exhibition contained a section or sections devoted to the fine arts. Seven years later an Exhibition of arts, industries, and manufactures, chiefly of Irish origin, was held in the city; and this was followed at an interval of ten years by an Exhibition held in the Rotunda. In 1907 an Irish International Exhibition was held in Herbert Park, about a mile and a half from the centre of the city; the scope of its organisers may be inferred from the fact that whereas the sites of the 1853 and 1865 Exhibitions had covered about two and six acres respectively, that chosen in 1907 extended to more than fifty-two acres. It was visited by 2,751,113 persons.

Famous Irishmen

AS we have indicated, the claims for recognition of famous Irishmen must perforce receive scant mention on this occasion A few notes on some distinguished names in science may, however, be of interest.

Michael Donovan was professor of chemistry, pharmacy, and materia medica in 1820 to the Apothecaries' Hall School of Medicine. He kept an apothecary's shop in partnership with a Dr. Dobbin, in Townsend Street, afterwards moving to Clare Street. In 1829 he published a pamphlet on the "State of Pharmacy in Ireland," and started a periodical, "Annals of Pharmacy and Materia Medica." The solution to which his name was given, "Liquor arsenici et hydrargyri hydriodatis," was introduced into the Dublin Pharmacopœia in 1850, but the formula was first published in a Dublin journal in 1839. Professor Donovan read a paper in 1843 at an evening meeting of the Pharmaceutive Society of Great Britain, and later published results on investigations of James's powder and tincture and extract of henbane. Donovan assisted in the preparation of the last Dublin Pharmacopœia; his work is acknowledged in the preface to that volume. He was anxious that apothecaries should be pharmacists purely, and made an attempt to found a College of Pharmacy for Ireland. He died in 1876.

Sir Patrick Dun (1642-1713) was born in Aberdeen in 1642. His grand-uncle, Dr. Patrick Dun, was principal of Marischal College. Sir Patrick appears in Dublin in 1676 as "physician to the State and my lord-lieutenant," and was elected one of the fourteen Fellows of the Dublin College of Physicians in 1677. From 1681 to 1687 he was president of the College and again in 1690-93, in 1696-98, and in 1706. He was one of the founders in 1683 of the Dublin Philosophical Society, before which he read a paper on "The Analysis of Mineral Waters"; and the first recorded public dissection in Dublin was in 1684, by a Mr. Patterson, on the body of a malefactor procured by Dun. He became a leading physician of Dublin.

Sir Robert John Kane was a professor of chemistry at the Apothecaries' Hall, being appointed in 1831. He was the son of the proprietor of a chemical works on the banks of the Liffey; his publications are "Industrial Resources of Ireland," and "Elements of Pharmacy," published in 1831.

Charles Lucas, M.D. (1713-1771), was the younger son of a Mr. Lucas of Ballingaddy, co. Clare, and was born on September 16, 1713. His father and elder brother were improvident, and the family removed to Dublin, where they lived in comparative obscurity and poverty. Having served the usual apprenticeship as an apothecary, Lucas was admitted to the Guild of St. Mary Magdalene and for many years kept a shop in Charles Street, Dublin. Details of his career will be found in Warburton's History and in THE CHEMIST AND DRUGGIST Special Issue of June 28, 1924 (page 923).

Sir Fielding Ould (1710-1789) was the son of an army captain, and was born in Galway in 1710. He studied medicine in Paris, and about 1736 began to practise as a man-midwife in Golden Lane, Dublin. His practice was large, and in 1742 he published in Dublin "A Treatise on Midwifery" in three parts, dedicated to the Dublin College of Physicians. The book added to Ould's reputation, and was read by students of midwifery for many years. In 1759 he was appointed master of the Lying-in



LAKE IN THE PARK, ST. STEPHEN'S GREEN, DUBLIN

The building in the centre beyond the footbridge is the Shelbourne Hotel



HOWTH AND IRELAND'S EYE, A DUBLIN YACHTING AND HOLIDAY CENTRE

Hospital in Dublin, was knighted, and received the degree of M.B. from the University of Dublin. He died on November 29, 1789. Some of his prescriptions written for the Countess of Mornington and her son, afterwards the first Duke of Wellington, have been published. These were dispensed at the shop of Mr. Evans, established in 1684 and still flourishing.

Apothecaries' Hall

THE separation of the Society of Apothecaries from corporate alliance with barbers in Dublin took place in the year 1745, prior to which year, Warburton's History quaintly tells us, the Society "continued quietly in that universal but disreputable connection." As early as 1742 the apothecaries of the city drew up a petition praying, on grounds which may readily be guessed, for a charter of incorporation. Earlier records are of the scantiest, though it is known that in 1566 Thomas Smith was granted a "concordatum" of twenty shillings and one day's pay from every soldier in garrison to enable him to act as an apothecary in Dublin and to supply "fresshe and newe druggs and other apothecarye wares in plentifull manner. . . ." The apothecaries' petition was referred to the King and Queen's College of Physicians, a body which had obtained its charter, on the surrender of an earlier one, in 1692; the College agreed to the grant of charter with the proviso that any by-laws proposed by the Society of Apothecaries regarding the composition of medicines should first be submitted for approval to the older body. The letters issued to the Society in 1745 applied, however, only to the City of Dublin; and in 1790 a petition was presented to the Irish Parliament setting forth the dissatisfaction of the apothecaries with the quality of the medicines they purchased from outside sources, and asking to be allowed to erect a hall of their own where they might undertake the manufacture of chemical and other preparations. In the following year an Act was passed giving them the desired permission—an Act which is referred to in the first Irish Pharmacy Act, that of 1875. A subscription was opened for erecting the hall, and, £6,000 having been raised, a site was selected in Mary's Street. The sum of £2,000 was then borrowed for stocking the shop and "elaboratory," and everything except large-scale chemical processes and the manufacture of essential oils was undertaken. The distillation of essential oils was in fact started at first, but proved unprofitable. William Higgins, afterwards Professor of Chemistry to the Dublin Society, was engaged as superintendent. Apprentices were expected to have read, in addition to their science subjects, "Cæsar, Sallust, Justin, Ovid's 'Metamorphoses', Virgil, and Horace; and in Greek, the four Gospels." Apothecaries were prohibited from keeping oils and colours or arsenic in any shop where they compounded medicine, and there were restrictions on the sale of arsenic, foreshadowing those of the British Arsenic Act in 1851. Physicians and apothecaries, four and two in number respectively, were to be appointed to inspect shops four times a year in order to ensure the good quality of medicines vended; and local inspectors were to fulfil this function in country towns. The cost of prosecution, however, proved a serious obstacle to the enforcement of this provision. The Apothecaries' Hall was at one time a teaching body, and built schools on the site of a Dublin physic garden. Though teaching has been given up, the examination hall contains some interesting paintings and a mace in the form of a rhinoceros (or possibly a bear) which is more than 200 years old.

Pharmaceutical Society of Ireland

A SERIES of special articles appeared so recently in THE CHEMIST AND DRUGGIST on the history of the Pharmaceutical Society of Ireland that it is unnecessary to recount that very important chapter of pharmaceutical history at great length. As the late Mr. W. N. Allen, who wrote the first of the articles referred to, pointed out, the passing of the Pharmacy Act (Ireland), 1875, ended a long controversy between the College of Physicians, the apothecaries, and the as yet unregistered chemists and druggists. It was easy after the Act was passed to see that it might have been better in various directions; however, the Act continued in force without emendation until 1890, when an amending Act created the two new statutory classes known as chemists and druggists and registered druggists. Sir Dominic Corrigan was the first president of the Society, and held that position until he resigned in April, 1878. His successors are: Mr. Charles R. C. Tichborne, F.C.S., 1878-83; Mr. J. E. Brunker, M.A., 1883-86 and 1887-89; Mr. W. N. Allen, 1886-87; Mr. Charles Evans, 1889-91; Mr. William Hayes, 1891-95; Mr. W. F. Wells, 1895-97 and 1904-05; Mr. R. J. Downes, 1897-1900; Mr. G. D. Beggs, 1900-03; Mr. J. Montgomery, 1903-04; Dr. J. A. Walsh, 1905-07; Mr. John Smith, 1907-10; Sir William J. Baxter, D.L., 1910-13; Mr. D. M. Watson, 1913-15; Mr. James Tate, 1915-17; Mr. James Michie, 1917-19; Mr. J. E. Connor, 1919-21; Mr. A. J. Barnes, 1921-24; Mr. Richard Blair, 1924-26; and Mr. F. J. Fitzpatrick, who is still in office.

The Society, which is the generous host of the Conference on this occasion, has continued on its way uneventfully for fifty-four years, carrying out its statutory duties, often at great expense and without public recognition of their importance. In 1889 the Council sent out a circular to all local public bodies pointing out the great security to the public afforded by a pharmacy with a qualified proprietor; this action was followed by vigorous, though unsuccessful, opposition to the Poisons and Pharmacy Bill which became the Act of 1908. The year 1925 brought the jubilee of the Society and the resignation through ill health of Mr. Arthur T. Ferrall, who had been its registrar for forty-one years. The progressive character of the Society may easily be gauged from one fact—that women



CHOIR AND EAST END OF ST. PATRICK'S CATHEDRAL

Founded at the end of the 12th century, the cathedral is a splendid cruciform church. Its tower is 14th-century and it was restored in 1860.

were admitted to its examinations as long ago as 1877. Whatever changes a new Pharmacy Act in the Irish Free State may bring, the historic importance of the Society cannot well be over-estimated.

Dublin Pharmacopœias

THE first quasi-official compendium of medicines which was issued in Ireland was a reprint of the current Pharmacopœia Londinensis published in 1746, by P. Wilson and J. Esdell. Further editions were brought out in 1772 and 1774 by Wilson's son. W. Gilbert followed with a similar production in 1778, and in 1791 the College of Physicians circulated specimen copies of a Dublin Pharmacopœia. The three editions were published in 1807, 1826, and 1850. Valerian first because official in the 1807 edition. Aqua calcis composita, an infusion of guaiacum, liquorice, sassafras, and coriander in lime water, is thought to owe its origin to an essay by a Dr. MacBride, a Dublin physician. A reprint of the 1850 Pharmacopœia, published in 1856, contains a series of poison regulations such as the following :—

That angular bottles or vessels and none others be employed in the dispensing of all medicines intended for external use.

That round bottles or vessels and none others be employed in the dispensing of medicines intended for internal use.

These regulations, it will be noticed, anticipate the corresponding British ones by several years.

Botanic Garden

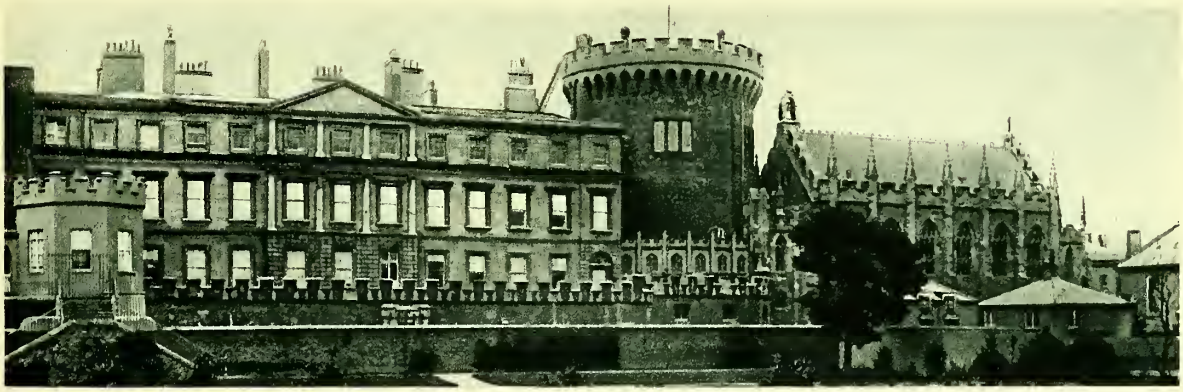
ABOUT 1777 there was a pressing want of a botanic garden in Dublin. The matter was considered by a committee of the Irish House of Commons, and the committee reported strongly in favour of the establishment of one common to the University, the College of Physicians, and the Royal Dublin Society. Provost Hutchinson endeavoured to have this plan carried out by Parliament. On June 6, 1791, at a board meeting, a letter was read from the Dublin Society asking the College to agree to the project of a joint botanical garden, and the reply of the Provost and the Senior Fellows expressed a doubt whether the scheme could be entertained. On December 10, 1792, the College of Physicians agreed to appropriate £100 annually out of Sir Patrick Dun's estate to the support of a botanic garden, upon Trinity College engaging to allocate a fund producing from £100 to £120 per annum. This agreement was confirmed on April 15, 1793.

It would appear that the College of Physicians was not able to allocate any portion of the revenues of Sir Patrick Dun's estate to this purpose, and thus the scheme was not carried out. In the meantime, Dr. Hill, the Professor of Botany, had rented some ground at Harold's Cross for the purpose of a botanical garden, and he was assisted to some extent by the College. It was not until 1891 that a curator was appointed; his salary was fixed in 1805 at £130 yearly, out of which he was to employ two labourers all the year round and two in addition from March to December. The plants and houses in the Harold's Cross garden were to a very large extent, if not altogether, the private property of Dr. Hill, for we find in the College accounts of 1803 the following entry: "Dr. Hill, allowed him by the award of the arbitrators, to whom the cause between the College and him concerning the Botany Garden was referred, £618 19s. 8d." From a statement of Provost Hutchinson we gather that he was the means of securing for the Dublin garden, through Sir Joseph Banks, many of the plants and seeds brought to England from the South Seas by members of exploring expeditions. In July 1806 the site of the botanic garden at Ball's Bridge was leased by the College for one hundred and seventy-five years at a rent of fifteen guineas per acre.

Extensive improvements in the houses were made in 1843, 1854, and 1884; and in 1877 the Royal Dublin Society transferred its control to the Science and Art Department. The gardens occupy about thirty-one acres.

Present-Day Features

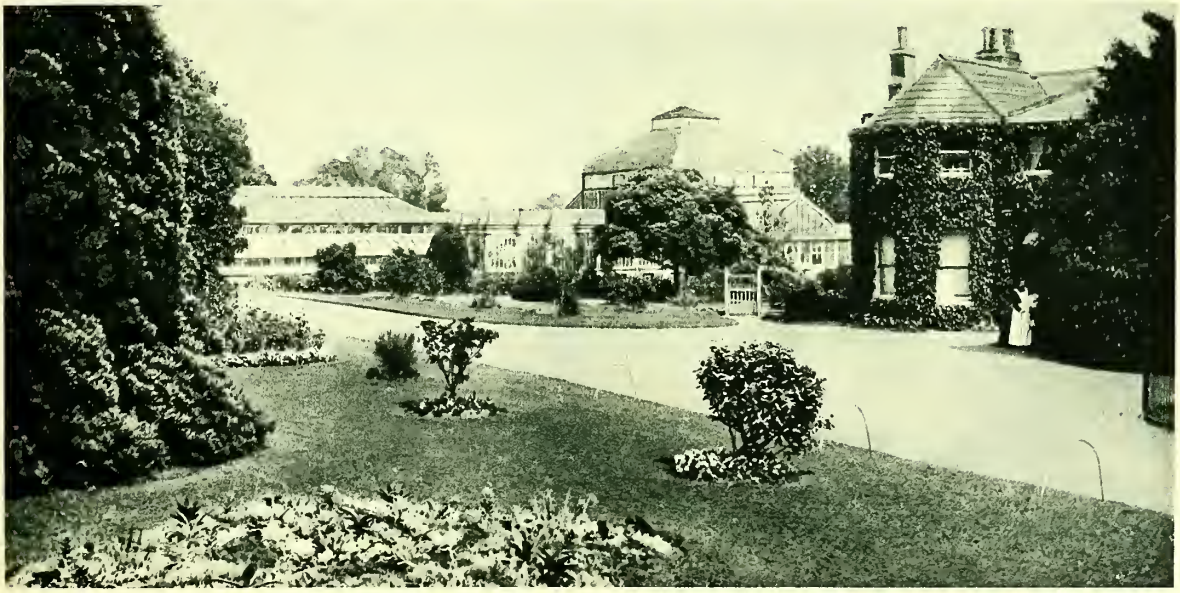
THOSE of our readers who have kept in touch with Conference events will realise that this is not the occasion for detailed reference to the architectural features of a city to which, when these pages appear, Conference visitors will be bidding a reluctant good-bye. During the past few days they will have appreciated for themselves some or most of its attractions. O'Connell Street, with its superb width set off by the judicious placing of the O'Connell Statute and the Nelson Monument, remains long in the memory. The Circular Road, nine miles in length, surrounds a wealth of handsome squares and parks, early and perhaps unsurpassed examples of town planning. St. Stephen's Square is the largest and Merrion Square the most picturesque of the spaces of that description, while Phoenix Park, covering about 1,750 acres and stocked with deer, is one of the most magnificent public parks in the world. The three cathedrals have their own individual beauties; while such landmarks as the Bank of Ireland, Trinity College with its wonderful library, St. Patrick's Cathedral (consecrated in 1192), Christ Church Cathedral (also twelfth century), Leinster House, University College, the Mansion House (the Conference meeting place), and the National Art Gallery cannot fail to make appeal. Whether the manufacture of whiskey, stout, and poplin is being investigated by visitors we have, at the moment of writing, no means of knowing; but we are sure that they have had "Cead mille failte."



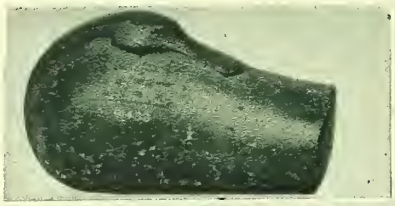
Old Dublin Castle with the 14th-century Bermingham Tower



The Residence of the Governor-General of Ireland near the Main Avenue, Phœnix Park



A CORNER IN DUBLIN'S GREAT BOTANIC GARDEN AT BALL'S BRIDGE



Greystone duck inscribed "30 'true' Minas," from the palace of Eriba-Marduk, King of Babylon about 770 B.C. Weight, 33 lb. 4 oz.

Set of Assyrian lion weights in bronze in the British Museum, ranging from 1 oz. 14 dr., 8 oz. 5 dr., 1 lb. 8 dr., to 4 lb. 6 oz. 4 dr.



Set of Assyrian polished hæmatite weights from Warka in the British Museum dating between 2000 and 1800 B.C. They range from 24 grams to 496 grams. Inset, above, a small hæmatite duck weight (91 grams), and a stone duck with the body hollowed out for insertion of a shaped piece of metal for fraudulent use.



Ancient Egyptian weights from Sir Flinders Petrie's collection. Above, early prehistoric (first two), late prehistoric and Pyramid period. Below, (1) 2,300 B.C.; (2) hæmatite, Syria, 1400 B.C.; (3 and 4) 600 B.C.

ANCIENT EGYPTIAN, ASSYRIAN AND BABYLONIAN WEIGHTS FROM 7,000 TO 2,500 YEARS OLD

WEIGHTS & MEASURES IN HISTORY

A Selection of Instruments and Units which have been used from Ancient Egypt to Modern Times with special reference to Medicine and Pharmacy

(Illustrated with 84 photographs from the principal European historical collections)

THE study of weights and measures in their historical aspect is of endless fascination. No specialised investigation, surely, can be more alluring than the attempt to relate the standards of one country, in every age, to those of other countries in corresponding ages and to unravel the almost infinite complexities arising from local trading conditions. Lewis Carroll would probably have agreed that it is "harder than bezique;" and if any learned society desires to extend the examination for its higher diploma to, say, nineteen days and to make it really searching, it might prescribe for study such a book as H. Doursther's "Dictionnaire Universel des Poids et Mesures Anciens et Modernes," with its 604 closely printed pages covering all the countries of the world.

Egypt, Babylonia, and Assyria

NO better starting point for a sketch so condensed as this can be found than the systems of ancient Egypt, the materials for a reconstruction of which, resulting from the expert knowledge and unwearying patience of Sir Flinders Petrie, F.R.S., Professor of Egyptology in the University of London, are now abundant. We are indebted to Sir Flinders Petrie for permission to photograph some of the objects used as illustrations in this article, and the paragraphs of this section are based on his two recent books, "Ancient Weights and Measures," and "Glass Stamps and Weights," two volumes that may be said to sum up the work of a lifetime. Incidentally, University College, London, where Sir Flinders Petrie's collection is housed, is in the fortunate position of being able to exhibit more than 4,000 Egyptian weights, about two-thirds of all that are known.

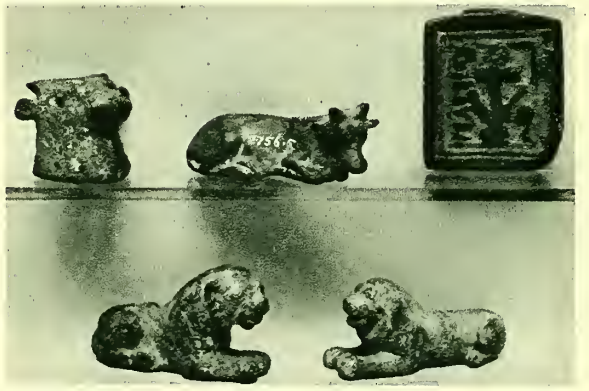
The Egyptian standards in use were eight in number, beginning with the peyem of 114 gr. or more and ending with the sela of 228 gr. or less. The variations in actual specimens found make the series overlap to some extent; and a further difficulty arises from the fact that weights are sometimes marked in a standard other than their own, "as we might now mark 35 ounces on a kilogram weight." This, indeed, is not the whole of the story of obstacles to a reconstruction of Egyptian systems; but Sir Flinders Petrie has evolved plans, including the adoption of a balance which can do as many as eighty weighings in an hour, by means of which order has been brought out of chaos. The earliest type of weight is the small blocks of limestone found in certain prehistoric graves; some are cylindrical, others are conical, and all have domed ends. Later types are oblong, pillow-shaped, barrel-shaped, cuboid, circular with domed tops, or shaped to resemble some animal or bird. Among the last-named, it is found that the lion from Babylonia is a tame animal, while that of Syrian origin is ferocious.

The peyem, the lightest of the Egyptian standards, averages 115.4 gr.: three weights of this denomination found in Palestine give an average of 116.4 gr., and it is believed that this peyem is referred to in the First Book of



A 4,000-YEAR-OLD BABYLONIAN STANDARD

One maneh, or manu=550 grams. Later investigations in Mesopotamia show that the Dungi of the inscription was King of Ur, 2391-2345 B.C., when Ur was capital of an empire which included Babylon.



ANCIENT WEIGHTS FROM THE FLINDERS PETRIE COLLECTION

Bull's head, 20 darics, 1400 B.C.; Ptolemaic calf, 50 drachms, 300 B.C.; Anchor weight, 15 peyem, c. 100 B.C. Below, Assyrian and Babylonian lions, 20 darics.

Samuel (xiii. 19-22). In Egypt the double peyem appears to have been the unit. From the peyem we ascend to the daric, probably of Mesopotamian origin and brought into Egypt in a prehistoric age by invaders; its average weight is 132.7 gr. The next standard bears the familiar name of stater; no early name for it is known. It ranges from about 133 gr. to about 140 gr., and is seldom fine or clean-cut. The qedet, "by far the most numerous standard in Eygpt," follows the stater with a range of 138-152 gr.; 10 qedets were equal to a deben and 10 debens to a sep in the twenty-sixth dynasty. The Egyptian drachm was half a qedet (i.e., about 70 gr.), and the tetradrachm was two qedets. After the qedet comes the necef; it seems that there may have two standard units, one of 154 gr. and the other of 163 gr. Above the necef are the khoirīnē (171-190 gr.), the beqa (189-215 gr.) and the sela (average, 220 gr.). "Khoirīnē" is a transliteration of the Greek name for a cowry shell, and there is nothing improbable in the idea that the average weight of such a shell may have been taken as a basis. Many Egyptian weights bore inscriptions. Metal was rarely used for weights before the Greek period; after it came into use, stone was largely restricted to the heavier denominations.

The recognition of Egyptian measures is a more difficult matter than



ANCIENT MEASURES FROM THE FLINDERS PETRIE COLLECTION

Above are small bronze measures for gold dust, of about 1500 B.C., from ¼ deben downwards (1 deben=1488 grains). Below are cylindrical examples, one of slate (on the left) with a king's cartouche (Cheops), and a Roman bronze of 2 Egyptian lins, 56 c.c. (centre) divided by internal ribs into fourths. That on the right is Hebrew of 1400 B.C.



A SUMPTUOUS SILVER MEASURE 5,000 YEARS OLD

This silver vase, now in the Louvre, a masterpiece of Sumerian engraving, was made for King Entemena of Lagash about 2950 B.C. M. Thureau-Dangin has shown that when filled to the beginning of the neck it held 10 Babylonian qa.

the identification of Egyptian weights, since, judging from their appearance, many vessels may, or with equal likelihood may not, have been used for the purpose of measuring. When, as sometimes happens, a vessel is found to be divided into fourths by bands placed inside, the inference is clear; but the number of accepted measures is smaller than the number of weights. The following series of standards has been worked out (here, as earlier, we omit decimals): Syrian, 21 cubic inches; hen, 29; log, 33; Attic kotyle, 17; Persian kapetis, 75.

Thureau-Dangin has worked out ("Journal Asiatique," 1909, and "Revue d'Assyriologie," XVIII) the following series of Assyrian weights and measures:—

The smallest weight is the she = 46.76 mg.;
180 she=one skiklu (shekel);
60 shiklu=one manû (mina);
60 manû=one biltu (talent) of 30,300 grams.
One sûtu of 8.42 litres is divided into 10 qa (or ⅘a)
60 qa=one pi;
100 qa=one imêru (homer).

Thureau-Dangin has the following note on the great silver vessel which was made for the Sumerian King Entemena, at the beginning of the third millenium B.C.:—

"Le vase d'argent d'Entéména est un nigin, c'est à dire une mesure de 10 qa . . . Il est donc peu probable que l'usage ait été de calibrer ce vase de telle manière que la mesure pleine correspondit à sa contenance totale. . . . L'hypothèse la plus vraisemblable en ce qui concerne notre vase paraît être que la limite est la naissance du col, ce serait donc la contenance de la panse seule qui correspondait à 10 qa. Or la panse mesure 4 lit. 15."

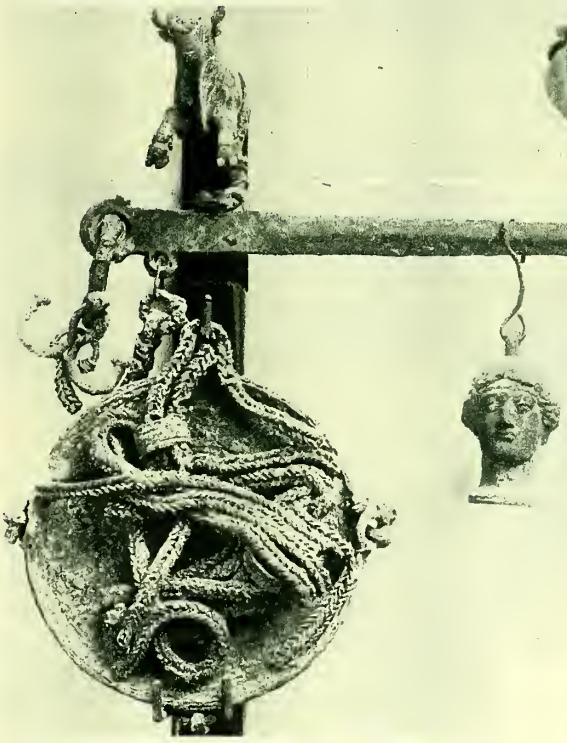
One of our illustrations shows a remarkable set of scales and weights in a box with tray. The box is about 12 inches long by 5½ inches wide, and the tray about 10½ by 4½ inches. The band that appears at one end of the box is of iron, studded with iron nails; this covered one end of the tray which fitted over the box. In the box is a balance beam with two brass pans; five brass weights are sunk in square holes, and still show the original polish. Their average error is 2.4 gr. A loose weight belongs to another series. In the tray is a smaller balance beam, with two pans which fit the tray and two others which are slightly larger; there are also two round weights, two coins and



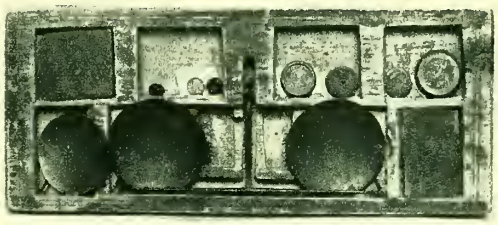
A bronze pig weight from the Etruscan Museum in the Vatican.

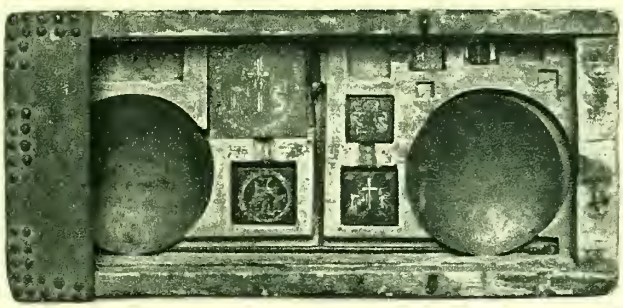


A primitive Etruscan balance with hooks for scales. From the Museo Gregoriano Etrusco, in the Vatican. The Etruscan civilisation preceded the Roman which borrowed largely from it. In the 6th century B.C. an Etruscan league was the strongest political force in Italy, dominating Rome and the Latin peoples akin to Rome. The steelyard probably originated in Etruria.



Etruscan bronze steelyards with decorative balance weights and original cords and pans. Above, from Campidoglio; top right, from Museo Gregoriano, Vatican; width of original about 17¾ inches.





A late Roman set with two balance beams and pans and brass weights bearing Christian marks. The box is bound with iron at one end, under which the tray slides. Dated by Sir Flinders Petrie at about A.D. 340; from his collection at University College.

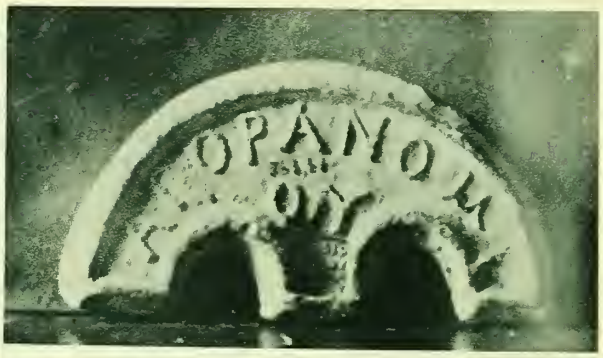


An early Etruscan balance in modern form from Campidoglio.

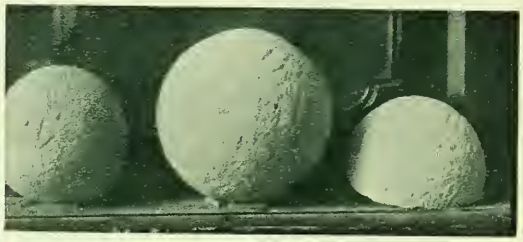
FINE EXAMPLES OF ETRUSCAN AND ROMAN SCALES AND STEELYARDS

Photographs of Etruscan items by courtesy of Dr. Carbonelli and Dr. Nogara





Four ancient Greek metal weights stamped with names of weights, varying from 307 to 348 grams. By permission of Director of Numismatic Museum, Athens



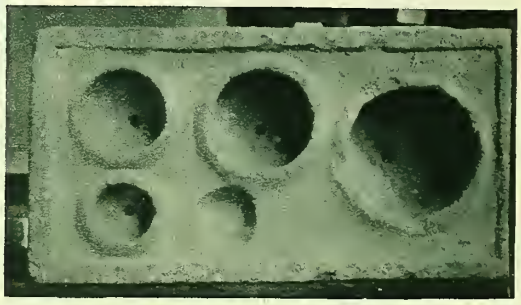
Stone globes found at Sunion which were apparently used to weigh corn. The heaviest about 10 occques







Small lead weights. Upper row Greek; lower Roman from Lyons, 1 to 10 scruples, used for drugs. *British Museum*



Stone measure of capacity; 4 of the 5 cavities have draining holes. Found in Crete, of the Hellenic or Græco-Roman period.

AN INTERESTING SERIES OF ANCIENT GREEK WEIGHTS AND MEASURES

Photographs by courtesy of Dr. E. J. Emmanuel of Athens University (except bottom left)

two glass lumps. It will be noticed that two of the holes in the tray have lids. This set is dated by Sir Flinders Petrie as about A.D. 340. The steelyard was unknown in Egypt or Greece until the Roman age; its source is Italic and it is still in use in Italy except at Venice, which, having for centuries a large oriental trade, has adhered to the balance. As is well known, a wave of imigration from Greece to Etruria set in about 1000 B.C., and in the course of the next five hundred years the Etrurians extended their power over a considerable area in Italy. The steelyard (also known as the Roman balance) is believed to have originated as an Etruscan piece of craftsmanship: mention of it is to be found as early as 315 B.C. The Arabs used the steelyard in Middle Ages. In the thirteenth chapter of his "Ancient Weights and Measures," Sir Flinders Petrie compares the Indian, Chinese, and Etruscan systems; as the result of many calculations the Indian pala averages about 581 gr., the Chinese tael from 576 gr. to 579 gr., and the Etruscan unit about 579 gr., all thus agreeing fairly closely with the Babylonian talent of about 580 gr. For the interesting historical deductions from this comparison and for alternative names of weights we must refer our readers to the book itself.

"The making of glass discs stamped by a die is peculiarly Egyptian, and there seems no evidence of any other source for such manufacture." This, the opening sentence of "Glass Stamps and Weights," is amplified by the explanation that the most usual purpose of stamped pieces of glass was for weights or for designating cup measures. They are divided into three periods, beginning in Roman times and ending about A.D. 1250. The period of maximum accuracy was in the years 775 to 785, "the half-dinar weights not varying a hundredth of a grain." The lettering was frequently designed as a square within a circular rim; on a wide weight the same stamp was made in two places. Many of the weights bear private names, and the colouring varies from period to period.

Greece and Rome

THESE Greek and Roman glass weights bring us into close relation with the Greek and Roman systems, to which, in turn, those of modern Europe owe much. The Roman solidus weights found average 70.7 gr. each, giving an uncia of 424 gr. and a libra of 5,090 gr.

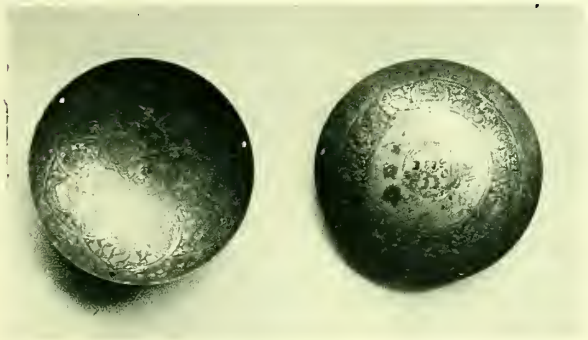
"The [Arabic] kharrubeh or carob is the Roman siliqua

so far as the names go. This was a sixth of the scripulum. Hence the uncia of these kharrubehs would be 441, diminishing to 429, grains. This is much above the usual Roman uncia; but there was a specially heavy variety in Egypt, influenced by being an octodrachm of the Ptolemaic or Alexandrian system. . . . The Greek keration likewise means the carob. . . ."

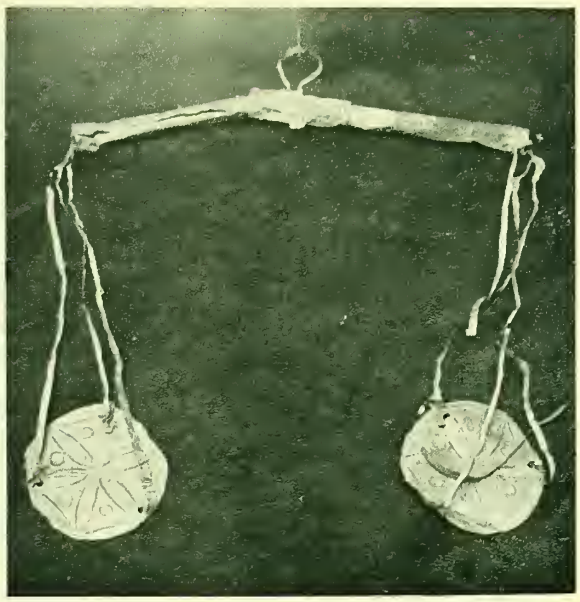
Many of the earlier Arabic weights are marked as a fels, usually of from 14 to 30 kharrubehs; a kharrubeh was approximately 3 gr. One reason for this "thinking in grains" and for the multiplicity of weights found is probably the use of various coinages in trading, involving the weighing of gold and silver from time to time. A weight approximating to the present British ounce is the wuqiyeh, which averages 443.4 gr. in glass and 445.6 in bronze or brass. A low wuqiyeh of 406.9-416 gr., equal to the Roman uncia, is also found, and there is even a high one of 487 gr. Commenting on the weights in the Græco-Roman Department of the British Museum, Sir Flinders Petrie remarks that the series of the Roman libra shows much corruption, the median being 4,905 gr. and the variation anything up to 100 gr. The same authority, in an article in the Encyclopædia Britannica, gives the following sequences:

Greek.—The chalcous of 1.4 gr. ×8=the obolus of 11.17 gr.; the obolus ×6=the drachma of 67 gr.; the drachma ×100=the mina; the mina ×60=the talanton.

Roman.—The siliqua of 2.87 gr. ×6=the scripulum of 17.2 gr.; the scripulum ×4=the sextula of 68.7 gr.; the sextula ×6=the uncia of 412 gr.; the uncia ×12=the libra of 4,950 gr.



Engraved scale pans of the Mameluke period, 14th century. Islamic Department, Berlin Museum



WONDERFUL SCALES IN GOLD FROM MYCENAE

Three pairs like these were found in tombs dated about 1400 B.C. They are finely engraved like many other gold objects found by Schliemann in Mycenaean graves. The civilisation of Mycenae precedes the Hellenic by several centuries.

National Museum, Athens; courtesy of Dr. Emmanuel

For measures, although standards are difficult to determine with finality, we have these values:—

Greek.—The cyathus of 2.9 cubic inches ×1½= the



Glass weights of the Abbasid period



(Left), Byzantine steelyard weight, woman's head in bronze with imperial ornament, 6th century. (Centre), bronze steelyard weight from Trebizond, 5th-6th centuries. (Right), bronze weight from old Cairo. From Christian Art Department, Berlin National Museum.

EXAMPLES FROM CHRISTIAN AND EARLY MOSLEM TIMES

Courtesy of Dr. Neugebauer, Berlin

oxybathon; the oxybathon ×4= the cotyle; the cotyle ×12=the chous; the chous ×12=the metretes of 2,520 cubic inches.

Roman.—The quartarius of 8.6 cubic inches ×4=the sextarius; the sextarius ×6=the congius of 206 cubic inches; the congius ×4 =the urna; the urna ×2=the amphora of 1,650 cubic inches.

A. Aurès, in an elaborate monograph on ancient metrology written in 1880, gives the Roman congius as 3.186 litres; between the sextarius and the quartarius he places the hemina (0.2655 litre), and below the quartarius he gives the acetabulum (0.066375 litre) and the cyathus (0.04425 litre). Lewis & Short's Latin Dictionary assigns to the congius "about" 206 cubic inches, and tells us that in dry measure 16 sextarii made a modius, and 6 modii a medimnum or medimnus.

England

THE early history of English weights and measures, though far from complete, is sufficiently documented to enable us to trace it in outline—even if the outline is in part a dotted or broken line—back to Saxon times. The words of William the Conqueror on the system of weights and measures (he transposes the order of mention) to be adopted in this country are: "Statuimus et præcipimus quod habeant per universum regnum mensuras fidelissimas et signatas et pondera fidelissima et signata sicut boni prædecessores nostri statuerunt." This is understood as a decree that Saxon usages were to be preserved: subsequent history points to the probability that these usages were not uniform throughout the realm. "Signata(s)" is usually translated "stamped"; probably the meaning "designated with a denomination" expresses the force of the word rather than "stamped with an official mark of approval."

The close connection between weights and money values for several centuries after the Norman Conquest is well known. Up to the close of Edward III's reign the



PICTURE OF THE FIRST BALANCE IN A GLASS CASE

From Norton's "Ordinall of Alchemy" in Ashmole "Theatrum Chemiam," 1651

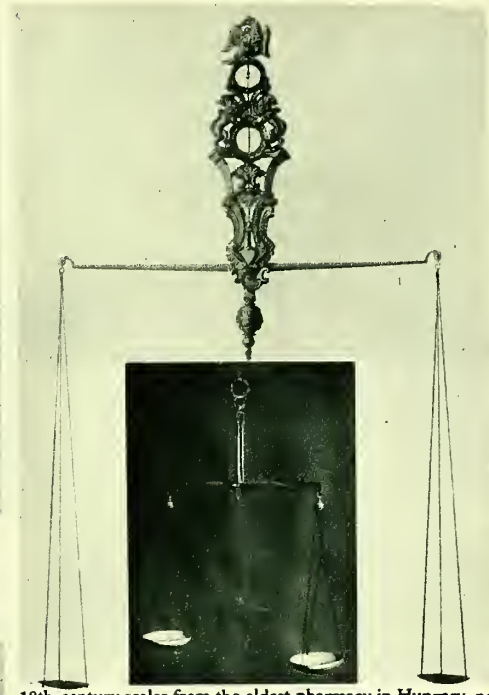


ENGLISH WEIGHTS AND MEASURES FROM THE TIME OF EDWARD I TO QUEEN ANNE

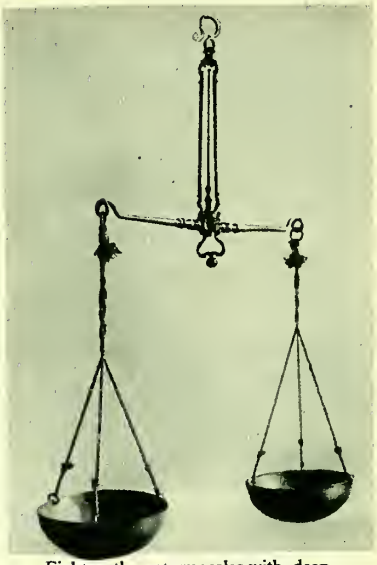
1, Bronze pint, "E.R. 1601"; 2, Bronze Winchester pint, Queen Anne, 1704; 3, 14-pound weight, Elizabeth, 1588; 4, Half-stone weight with arms of Charles I; 5, Bronze weight with arms of Edmund, Earl of Cornwall, 1300; 6, Steelyard weight, 14th century; 7, set of weights in leather case, 16th century; 8, Lead weight with arms of England, time of Edward I
British Museum



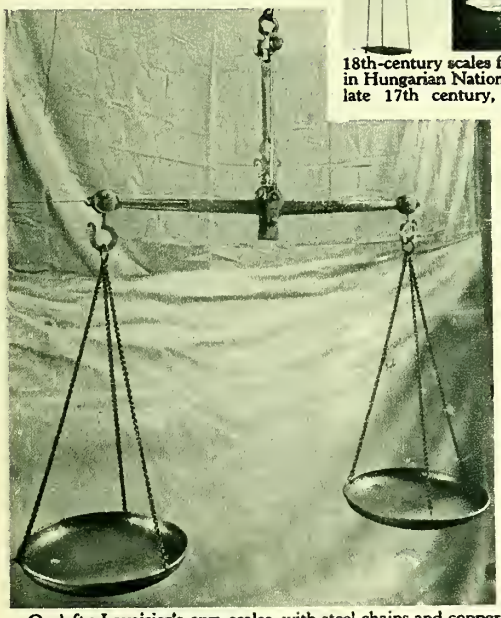
Apothecary's balance scales from the beginning of the 18th century, in the Austrian Museum of Art and Industry, Vienna.
Courtesy of Dr. Zekert



18th-century scales from the oldest pharmacy in Hungary, now in Hungarian National Museum. Inset: Ivory hand balances, late 17th century, from Germanic Museum, Nuremberg.



Eighteenth-century scales with deep copper pans from the Germanic Museum, Nuremberg.
Courtesy of F. Ferchl



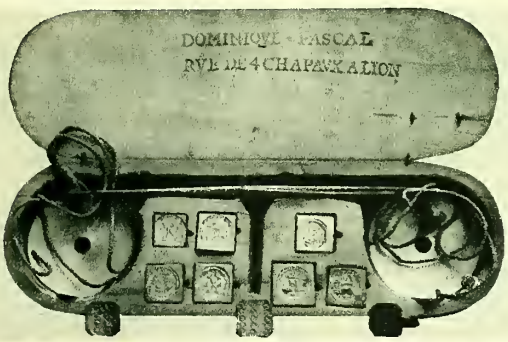


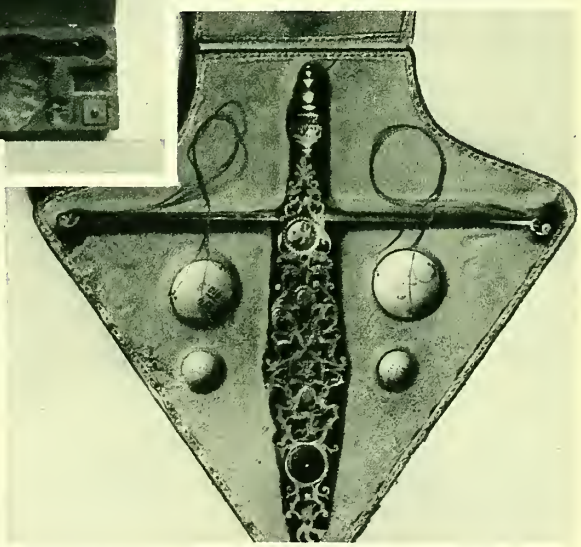


On left: Lavoisier's own scales, with steel chains and copper pans, Musée des Arts et Métiers, Paris. On right: Small set of hand scales from the Schässburg Apotheke, Rumania, dated 1716. Collection of Dr. Orient



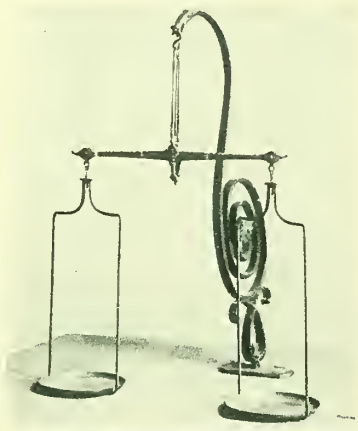
Pair of Saxon scales from Gothland, about 3rd-4th century A.D. Used for weighing silver. British Museum





A very neat set in a wooden case with finely stamped weights, from the Reber Collection, Lausanne. Made by Dominicque Pascal, of Lyons. Right: A highly ornate balance of the 18th century from Körmöczbanya, now in the Historical Pharmacy, Hungarian National Museum

HAND AND HANGING BALANCES AND SCALES FROM THE 4th TO THE 19th CENTURY





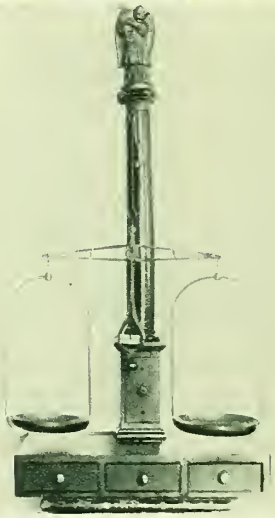
Two examples from the Germanic Museum, Nuremberg. That on the right is 17th century, has a column of glass with a foot and top of brass and was formerly at Baden-Baden.
Courtesy of Christof Müller, Nuremberg



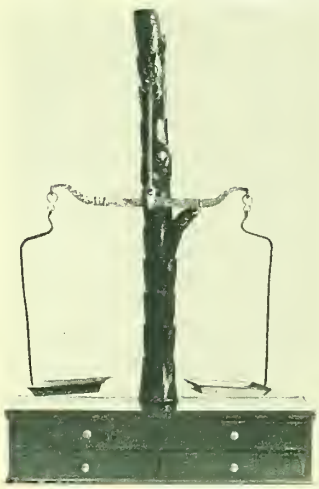
An elaborate compound set of balances and weights of 1859 from the Medical Historical Collection, Zürich University.
Photograph, Dr. R. Maeder, St. Gall



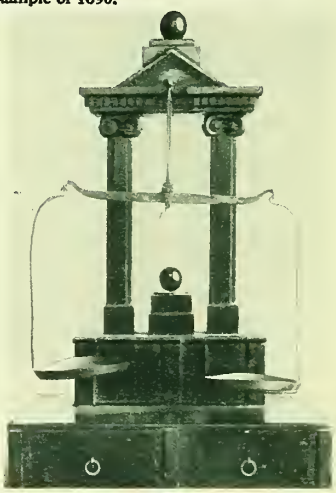




Two unusual forms of apothecary's balances with spiral columns, from the Deutsches Museum, Munich, the first being from the Elefanten Apotheke at Regensburg. Both of the early 18th century. On the right is an example of 1690.







The example on the left is from a Kronstadt Apotheke, dated 1690. From the Collection of Dr. Orient, other items from whose Museum are seen in pages 823 and 825. In the centre : Late example with twisted pillars from the Deutsches Museum. Note cord suspended from the German eagle's beak. That on the right, probably dating from the early 19th century, is in wood, and presents an attempt at architectural form.

FINE AND CURIOUS BALANCES WITH STANDS OF THE SEVENTEENTH TO THE NINETEENTH CENTURY



Neat set of nested weights from National Museum, Copenhagen.













NESTS OF PHARMACEUTICAL WEIGHTS MADE AND USED IN THE SIXTEENTH AND EIGHTEENTH CENTURIES

Top right : Nest of pharmaceutical weights of 1760 from the Collection of Dr. Orient of Kausenburg. A few examples of the smallest weights in this set are shown separately in the bottom left-hand corner. Middle left : Set of Swiss weights of the 18th century from the Reber Collection, Lausanne. Immediately below : A few pharmacy weights of the year 1555 from the Germanic Museum, Nuremberg. Note the symbol form of the drachm and ounce weights. Bottom centre : An ornamented nest of weights from the Historical Museum at St. Gall. Bottom right : Scales and weights made by Arnold von Boichem in the year 1618, from the Landesmuseum, Zürich.

Photographs by courtesy of Dr. Orient, Cluj, and Dr. R. Maeder, St. Gall

weight of articles of gold or silver was expressed in pounds, shillings, and pence. Contemporary records refer to that system as "pois della tor" or "pois d'orfevres" or "monaye des gross." The term "pois de troie" first occurs in an inventory dating from the first year of Henry IV (1399-1400), and it is considered likely that it was introduced from France during the English occupation under the Black Prince in Edward III's reign. Magna Carta, indeed, had declared that "there shall be one measure of wine throughout the realm . . . and it shall be of weights as of measures," and this provision was repeated in an Act of the year 1297; but usage and commercial convenience proved to be stronger than even the text of Magna Carta. As early as 1343 there is mention of the Tower pound, a standard kept in the Tower of London and weighing 5,400 grains; the troy pound, whenever it first appeared, weighed 5,760 grains; and in 1574 a jury to whose investigation we shall return a little later declared the avoirdupois pound to be equal to fifteen troy ounces (7,200 grains). The old pennyweight or sterling is often referred to as the equivalent in weight of thirty-two grains of wheat "in the midest of the eare"; but, as the Warden of the Standards pointed out in his annual report in 1873, there is no record extant of the actual construction of any standard unit from the ascertained weight of any number of wheat grains. Experiments made in connection with the preparation of the report referred to showed that the weight of 640 wheat grains varied from 441.638 gr. to 414.179 gr., the latter weight being obtained with the same set as the former on carefully drying. These grains thus give a range of from 20.7 gr. to 22 gr. for thirty-two. Taking another sample, thirty-two had a minimum weight of 25.7 gr. and a maximum of 28.2 gr. We thus find in two samples a possible difference of 7.5 gr., more than a third of the smaller weight and more than a fourth of the larger. Though troy weight was made legal by an Act of



Two varieties of measures in solid tin made in the eighteenth and nineteenth centuries, from the Reber Collection at Lausanne. Those on the right have internal ribs worked dividing the measures into parts. Further examples are seen below.



Two examples of French pewter measures from a set dated 1769.



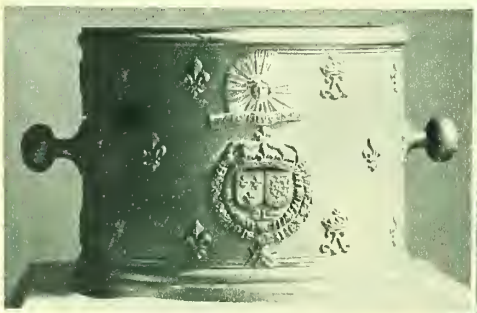
Eighteenth-century apothecary's liquid measures in glass. That on the left is marked from ¼ drachm to 1½ ounces, the centre from ½ drachm to 8 drachms, and the right from ¼ drachm to 1 ounce. Above is a set of pewter measures from the Germanic Museum, Nuremberg.



Standard measures of capacity in bronze, dating from the time of Louis XIV.



Further examples of the tin measures from Lausanne seen at the top of the page. These were in use until 1880.



Particularly fine example of one of the cast bronze Louis XIV measures.







French pewter measures dating from the year 1769 when Louis XV was still on the throne; that in the centre is a "pinte" measure.

THE FIRST LITRE. A cadel or cubic decimetre in glass dated "Fourché l'an 2me." The metric system was first established by the Convention in the French Revolution.

INTERESTING AND HISTORIC EXAMPLES OF MEASURES OF CAPACITY

Parliament in 1496, Tower weight continued to be the official Mint weight until 1526, when it was decreed by proclamation that "the Pounde Towre shall be no more used and occupied, but al maner of golde and sylver shall be wayed by the Pounde Troye, which maketh xii oz. Troye, which excedeth the Pounde Towre in weight iii quarters of the oz." Avoirdupois weight was legalised by an Act of 1532. To add to the confusion, there was also, as far back as 1301 if not earlier, a merchant's pound (libra mercatoria) of twenty-five shillings (pondus viginti-quinque solidorum legalium sterlingorum, as it is defined in a statute of Henry III), to be used for commodities other than precious metals and medicines. According to the definitions already given, this pound contained 6,750 gr.; it was possibly put out of action at a comparatively early date by the superior attractions of the avoirdupois pound. The Warden of the Standards of 1873, Mr. H. W. Chisholm, afterwards wrote a handbook on weights and measures; and in it he made the following reference to grain weights :—

"Although the penny, or pennyweight, of silver of the old English money weight is declared in the ancient Statutes of Henry III, Edward I and Henry VII to have been of the weight of thirty-two grains of dry wheat taken from the middle of the ear, the wheat grain being thus equal to 0.703 troy grain, there is no evidence of any such metallic grain-weights having been in use; and until the introduction of troy weight, the smallest weight used would appear to have been the farthing of silver, equal to 5.625 troy grains. But upon the introduction of troy weight into England, and of a gold coinage in the reign of Edward III, metallic grain-weights appear to have been established, and to have been practically used. Together with the ancient moneyer's pound which was found in the Pyx Chamber, there was also discovered a small neatly turned box with an inscription upon it in the handwriting of the period, certainly not later than the reign of Edward III—'Grana pro auro.' It contained a small disc of copper marked with two dots, and was evidently a two-grain weight. Its weight at the present time [1877] is 1.869 grain of our present standard, one grain being equal to 0.934 troy grain."

The confusion which, obviously, could not fail to arise from the simultaneous use of several general standards—to say nothing of local ones, which are beyond the scope of this article—led to the appointment, in 1574, of a jury or panel consisting of nine merchants and twelve goldsmiths of the City of London, who were directed to examine the existing standards of weight and to report on their accuracy. Juries of all kinds are prone to err; and this jury's findings had so short an authority that eight years later the fresh sets of standard troy and avoirdupois weights that they had ordered were condemned by another jury composed of eighteen merchants and eleven goldsmiths. Before we dismiss the worthies of 1574, one or two excerpts from their report may be of interest. (It appears that they rejected as standards the existing Exchequer avoirdupois weights in favour of the City of London set, made in the reign of Henry VII and agreeing somewhat better with each other than the government set.)

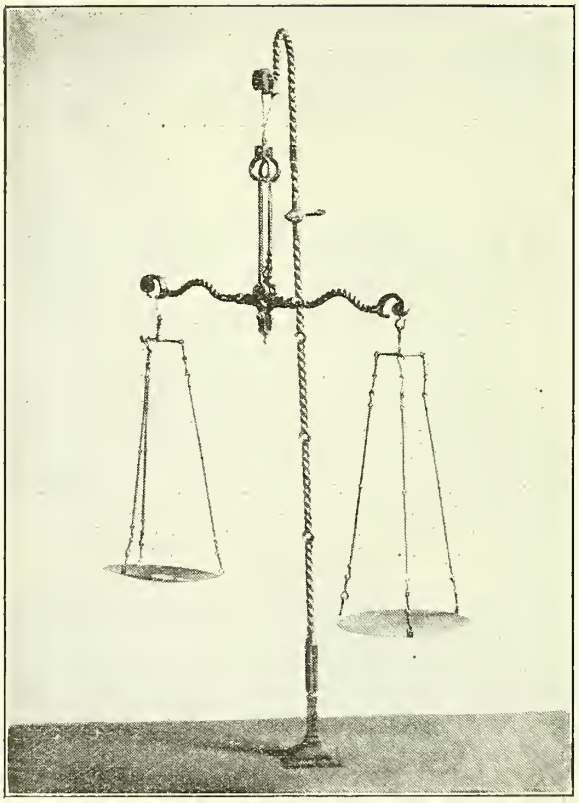
". . . theye saie that the said twoo sortes of weights doe differ in weight the one from the other three ounces troic at the pounde weight, for the pounde weight troie doth consiste onlie of xii oz. troic, and the lb. weight of avoir de poiz weight dothe consiste of fiftene ounc troie, and they saie that according to the auncient usage and longe custome of time, whereof no memorie is to the contrary, the troie weight is to be used in the weainge of breade, gold, silver, pretious stonnes, pearles, corall, amber, and kindes of confections namelie, electuaries. And yt in all other thing the avoirde de poiz weight is to be used."

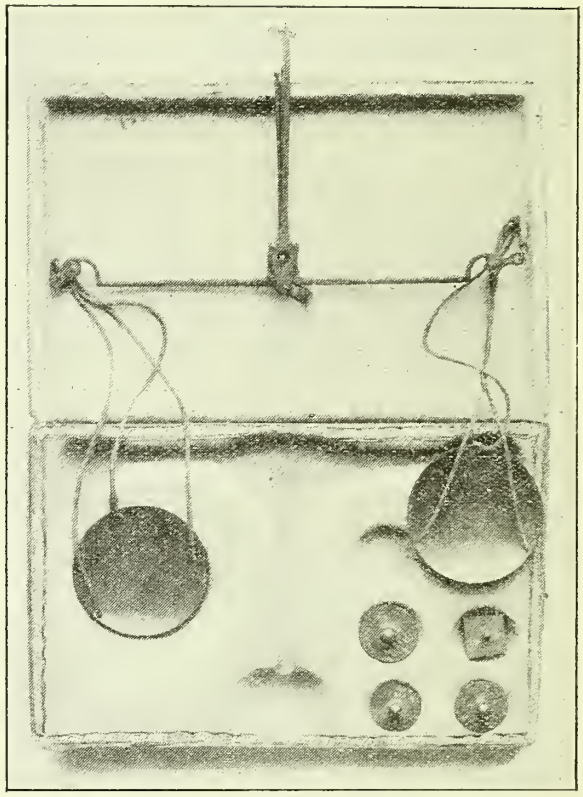
The two "standard" hundredweights were not examined: in 1873 they were found, after cleaning, to be in excess by 4,614 gr. and 1,047 gr. respectively, and it is supposed that they were never properly adjusted. Many smaller weights were, however, condemned in the 1574 report, and the amount of excess or defect was given in each case; among these were specimens from London, "Exetor," Winchester, "Wocetor," Norwich, the Exchequer, the Tower, and "Clarke of the market his weights." The jury proceeded to decide, as were they authorised to do, on "one certen severall standard as well of ye troie weight, as of the avoir de poiz aunswerable to the lawes and ordinances of this realme, and agreeable to the very true olde standard thereof so neare as by their understanding, with all manner of diligence, and enquire they could find out of suche severall poiz, as paterns thereof have bene delived to them . . ." Among the weights there was :—

"One ivorie boxe conteyning penye weights, grains, and parts of grains, after xxxii grains to the penny weight, distinguished by severall markes. One other lesser boxe of ivorie conteyning penny weights, grains and partes of grains, after xxiiii grains to the penny weights, distinguished by severall markes. . . . In the bigger boxe lxi penny weight, iii quarter, and iii xvith ptes of a graine. In the lesser boxe lxx penny weights, xvii grains, iii quarter, and iii xvith partes of a graine. . . . A pile of smale weights of avoirde de poiz, wherein the pounde weighte is divided in xvi partes, for computacion sale."

It will be noticed that the jury of 1574 regarded the avoirdupois pound as containing fifteen troy ounces, and yet sanctioned its division into sixteen ounces. Chisholm finds that they also confused the English pennyweight of 22½ gr. with its troy counterpart of 24 gr. Their more accurately informed successors of 1588 made troy standards agree with the "true proportion of the pile or standard remaining in Goldsmith's Hall to size all other weights by, which hath been of ancient continuance and of use," and avoirdupois standards correspond with the 56-lb. standard in the Exchequer, "as it seemeth, since the time of King Edward III, to size all other weights by . . ." These standards found such favour that fifty-seven sets of copies were distributed to various cities and towns—at a total cost that seems moderate to modern eyes, £547 17s. 2d. The Standards Department of the Board of Trade still possesses thirteen of these Elizabethan weights, all of which deviate but slightly from present-day values with the exception of the 256-ounce weight. Measures of capacity (gallon, bushel, and so forth) were similarly constructed and were used until 1824. The chief addition to these standards made prior to modern times was the wine gallon of 1707, which was taken as having a capacity of 231 cubic inches, and when tested in 1873 was found to measure only 0.07 cubic inches less.

The recent history of our weights and measures may be said to begin with the recommendations of a House of Commons Committee which was appointed on March 22, 1758, to inquire and report concerning "the original standards." This Committee, consisting of sixty-three persons, presented its report on May 26, and its resolutions were, on June 2, after slight amendment, agreed to by the House and printed in the Journal. One primary unit adopted by the Committee was "the Distance between the Two Points in the Gold Studs in the Brass Rod described . . . and delivered herewith"; this constituted the yard, and from it were derived all measures of capacity. The other primary unit was "the Pound herewith delivered, . . . made upon the Examination and Review of the several present Standard *Troy* Weights therein mentioned; and that the 12th Part of the said Pound should be an Ounce . . ." All other weights were to be taken from the standard pound. On December 1 of the same year another Committee, with the same chairman (Lord Carysfort), but consisting of sixty-eight persons, several of whom had not served in the earlier Committee, was delegated, in precisely similar terms of reference, to go over the same ground. Possibly there was some unrecorded deficiency in the methods or conclusions of the March Committee; at any rate, it was ordered by the House of Commons on December 4 "That one of the said Boxes, which contains a Troy Pound Weight, be now brought to the Table. And the same was accordingly brought to the Table by the Clerk." The weight, by another order of the House, was referred to the new Committee. On April 12, 1759, this committee's report was adopted by the House. It appears to be an elaboration of its predecessor's findings—e.g., it mentions specifically "The several Parts of the Pound . . . viz., the Half Pound or Six Ounces, Quarter of a Pound or Three Ounces, Two Ounces, One Ounce, Two half Ounces, the Five Peny Weights,





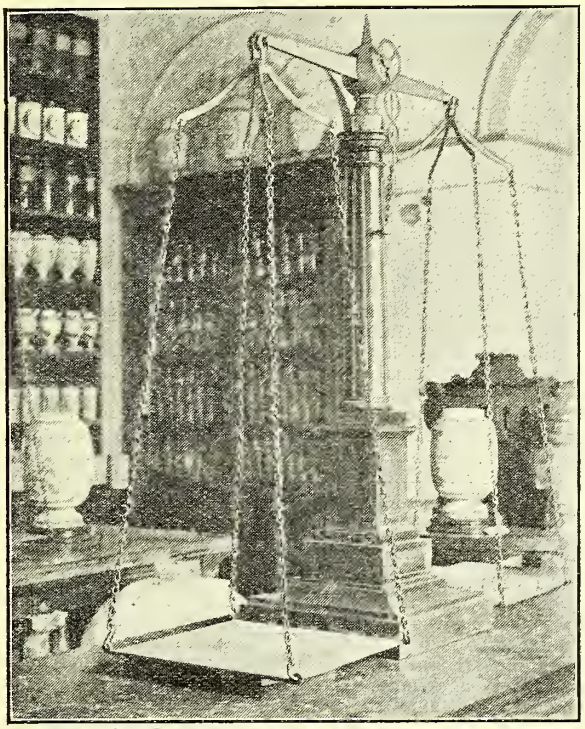
PHARMACEUTICAL SCALES OF THE XVIII AND XIX CENTURIES

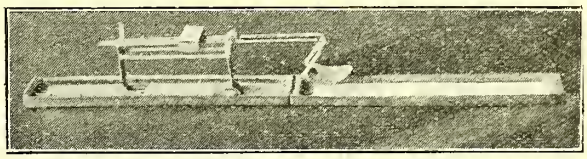
That on the left, with its delicate twisted brass pillar, is of the 18th century; that on the right, in its case with weights, dates from the year 1826, and came from the Apotheke Freyler of Orsova, Rumania. Now in the private collection of Dr. Orient, of Cluj.

[*Photographs by courtesy of F. Ferchl and Dr. Orient*

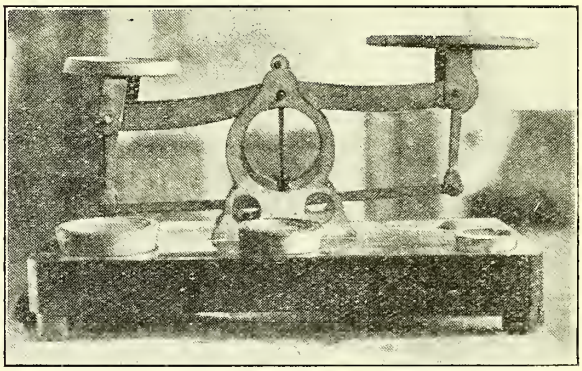
Three Peny Weights, Two Peny Weights, and One Peny Weight, the Twelve Grains, Six Grains, Three Grains, Two Grains, and Two of One Grain each. . . ." The Committee recommended that all weights above a pound should be of brass, copper, bell-metal, or cast iron, with a particular shape in the case of those made of cast iron, and that all weights of a pound or less should be of gold, silver, brass, copper, or bell-metal. The initials of the maker's name were to appear on every weight; and the custody of standards and certified copies of them was provided for. The troy pound weight borrowed from the Clerk of the House was, by order, restored to him. March 31, 1760, saw another stage in the slow parliamentary process; it was reported that copies of the standard pound, "Models of Patterns of the Parts thereof" and multiples had been prepared, and a Committee was chosen to examine, compare and adjust them. On May 21, Lord Carysfort reported that the Committee had carried out its duties as a whole, but that "they were obliged to intrust One Copy of the Standard Pound to the Care of Mr. *Harris*, for the Purpose of sizing and adjusting the Pound Weight of fine Gold ordered to be made agreeable to it by the Resolution of this House . . . but which Mr. *Harris* has not been able, by a severe Fit of Illness, to undertake and prepare . . ." This copy was therefore left with Mr. Harris, then Assay Master of the Mint, till the next parliamentary session. The late Professor W. H. Miller, in his elaborate paper—a piece of work involving hundreds of calculations—on the imperial standard pound ("Philosophical Transactions of the Royal Society," Vol. 146, pp. 753-946), suggested that the pressure of public business arising from the accession of George III in 1760 prevented further progress being made. As a matter of fact, however, the resolutions agreed to on June 2, 1758, were on February 8, 1765, referred to a Committee of the whole House; six days later a series of resolutions imposing duties for making and selling weights was similarly referred. This procedure appears to have been the means of shelving the matter; and although various entries relating to weights and measures occur in the Journals of the House—e.g., in 1795—the next step of any importance was taken in 1818, when Sir Joseph Banks, Dr. W. H. Wollaston and four other men of standing were appointed commissioners to consider the practicability of establishing a more uniform system of weights and measures.

They reported to a Select Committee, which in turn reported to the House on May 23, 1821. The two primary units recommended by commissioners and Committee as standards of length and weight respectively were a brass yard made by Bird in 1760 (based on the Royal Society's standard yard of 1742) and a two-pound weight made in 1758; the weight was to be taken for official purposes "at the mean height of the barometer" and with the thermometer at 62 degrees Fahrenheit. The now familiar standards laid down need not be recapitulated; but a detail of the history of the gallon is of interest. The gallon measure in the Exchequer contained 270.4 cubic inches; the gallon as derived from the bushel, 266.1; the gallon from a definition in an Act of William III, 268.8; from the pint, 276.9; from the quart, 279.3; the beer gallon of an unnamed Act, 282; and the Winchester gallon, 272.25. Legislation on the lines suggested in the report followed, and "an Act for ascertaining and establishing Uniformity of Weights and Measures" received the Royal assent on June 17, 1824. The Act contained no provision for the safer custody of the two primary standards, and it thus happened that they were destroyed in the burning of the Houses of Parliament in 1834. The weight actually adopted under the Act was of one-pound denomination, and one section provided that if it should be destroyed or lost, it should be replaced by calculation from the weight of a cubic inch of

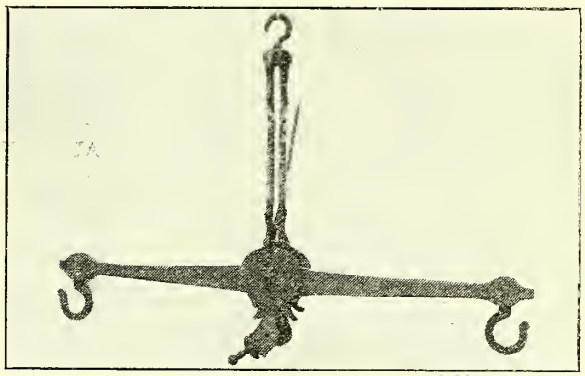




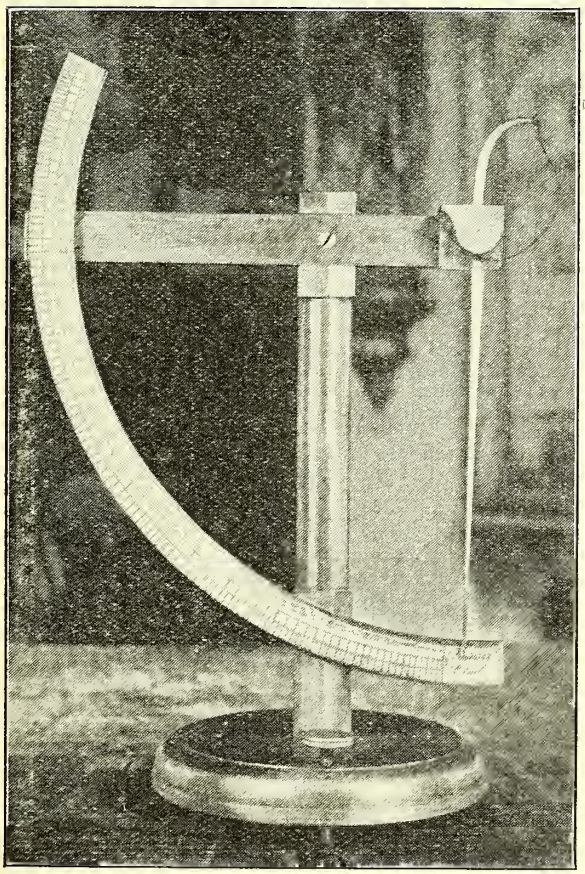
18th century precision balance by Zekier, of Paris. It folds down into the long case seen. Now in the Historisches Museum, St. Gall.

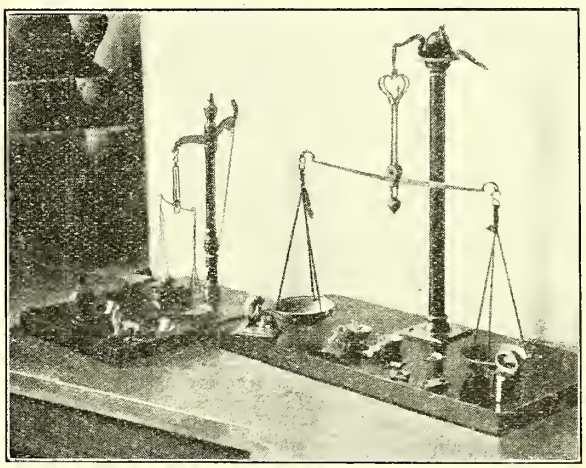


An old pair of scales with weights from the Historical Medical Collection of the University of Zurich.



Suspended balance beam which was used for weighing bundles of herbs. Now in the Reber Collection, Lausanne.

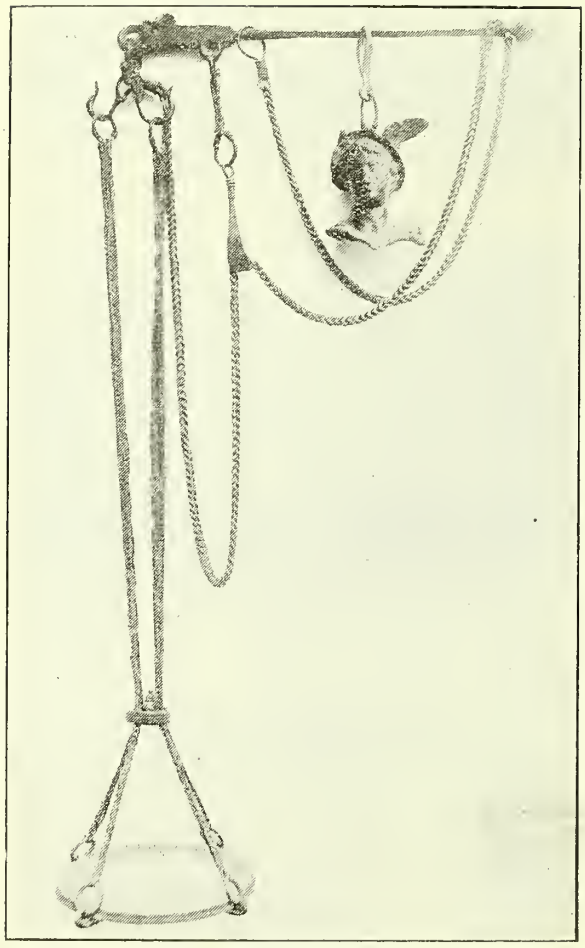




Above left : Old scales still in use at the Pharmacie Centrale des Hôpitaux, Paris. *Below left :* Denie pharmacy balance of Turin, first half of 19th century, now in the Landesmuseum, Zurich. *Below right :* Two old balances in the pharmacy of the Medical Pharmaceutical Museum, Amsterdam. The balances are raised by pulling the small lion forward.

MISCELLANEOUS BALANCES AND SCALES OF HISTORICAL INTEREST

[Photographs by courtesy of Dr. R. Maeder and Professor Van der Wielen



FINE ETRUSCAN STEELYARD

In addition to the interesting examples on page 819, the above late specimen from Campidoglio is given for the sake of its fine chain work and artistic weight with the winged head of Mercury.

[*Courtesy of Dr. Carbonelli*

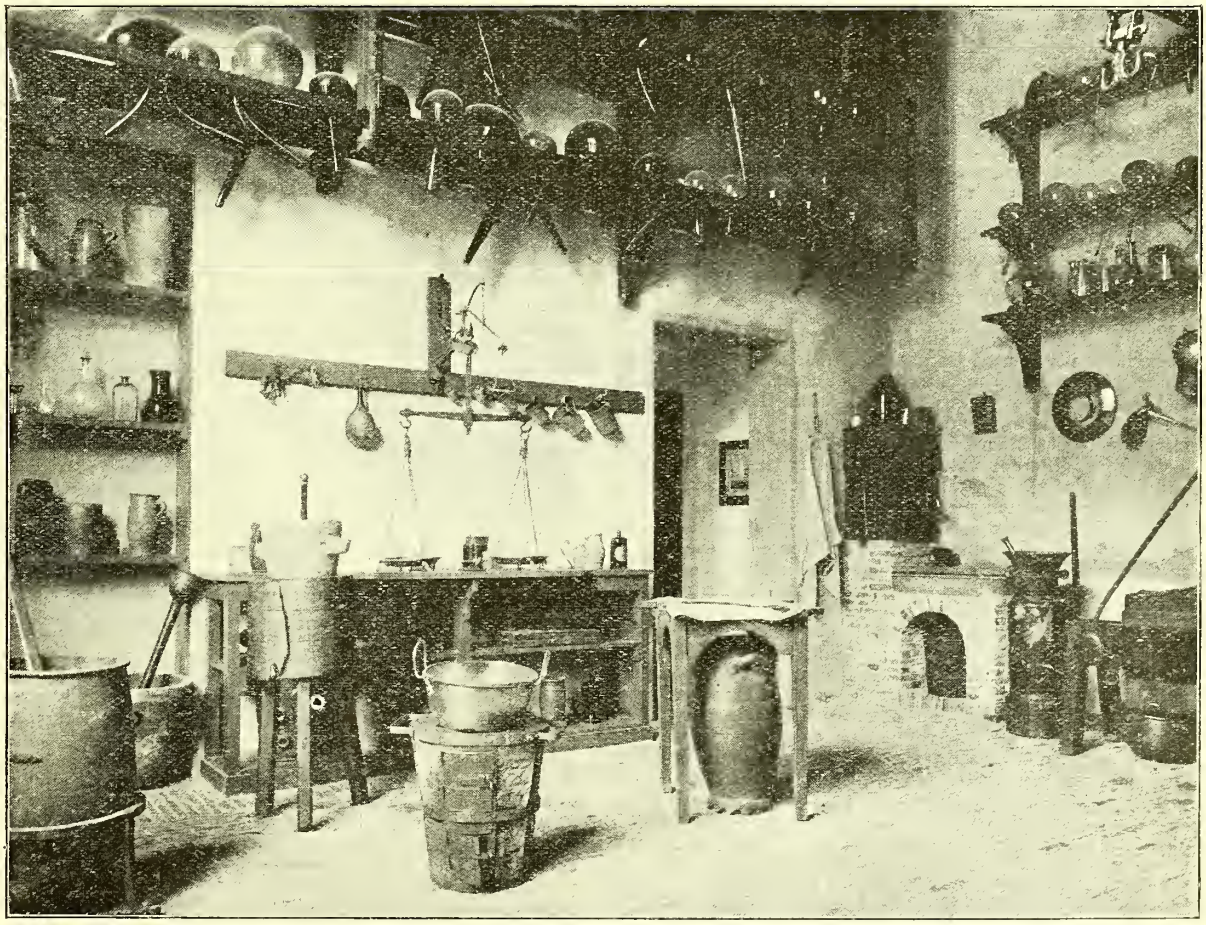
distilled water weighed in air at 62 degrees Fahrenheit with the barometer at 30 inches of mercury. The satisfactory restoration of the lost standards proved to be a more difficult task that the framers of the Act of 1824 had foreseen. In 1838 the Astronomer-Royal and eight other men of science were appointed to consider and report upon the steps to be taken for this purpose. They reported, in 1841, that since the passing of the Act it had been ascertained that several of the experiments relating to the standard of length were doubtful or erroneous, and that there was a difference of about $\frac{1}{1000}$ between the best English, French, Austrian, Swedish, and Russian determinations of the weight of a cubic inch of water, whereas the operation of weighing could be performed with an error of only one-millionth of the result. They showed, by actual figures, that the error involved in followed the method prescribed by the Act was at least 2,829 times as great as that resulting from the careful comparison of existing copies of standards, and accordingly recommended the latter method of ascertaining data. They also recommended the adoption of the avoirdupois pound as the standard and the discontinuance of recognition of the troy pound, which, they considered, should be used only for gold, silver and precious stones

A commission consisting of twelve people, some of whom had been members of the Committee of 1838, was selected in 1843 for the purpose of superintending the construction of new standards of length and weight. The Astronomer-Royal of the day was again chairman, and the commission continued its investigations for eleven years. There was no lack of available troy pounds of some repute; those chosen in the first instance for comparison with each other numbered thirteen. It was noticed, however, as might have been expected, that there were discrepancies between the brass weights; and it was therefore decided to rely on two platinum troy pounds, one of which belonged to the Royal Society and the other to Professor Schumacher. These had been compared in 1829, just after they were made, with the since lost standard; the mean of 140 observations with the Royal Society's weight, and of 300 observations with the other, gave deviations of −0.00205 gr. and −0.00857 gr. respectively from the older weight. Density of material, temperature and barometric pressure having been allowed for, a new platinum troy pound was constructed; after this had been compared 122 times with the Royal Society's pound and 286 times with that of Professor Schumacher, it was finally determined that in a vacuum it weighed 5,759.47143 gr. A standard troy pound was intended to have its true weight in air, but the new imperial pound was to be accurate *in vacuo*.

The next step was to construct a new avoirdupois pound. For this purpose there was added to the new troy pound four new platinum weights of 1,240 gr. each, all carefully verified in terms of the standard; the mean of these weights when taken in a vacuum was ascertained, and it was found that 0.64266 gr. was needed to make up the 7,000 gr. This was obtained by a similar process of making small platinum weights and determining their mean. The imperial standard pound thus evolved is a cylinder of platinum about 1.35 inch high and 1.15 inch in diameter, with a groove round its side, near the top, for insertion of the points of an ivory fork for lifting. A final calculation, after 340 comparisons with the counterbalancing weights by means of which it had been constructed and taking into consideration the requisite factors, gave its weight in terms of the lost standard as 7,000.00093 gr.; and, as the density of that standard had to be assumed, the 0.00093 gr. was given in, as it were, and the new imperial pound was deemed to contain exactly 7,000 gr. It may be supposed that the question is not likely soon to be re-opened. This decision having been reached, four "parliamentary copies" of "P.S. 1844, 1 lb." were constructed. These, duly numbered and accompanied each with a copy of the imperial standard yard, were deposited respectively at the Royal Mint, with the Royal Society, at the Royal Observatory of Greenwich, and in the New Palace at Westminster (i.e., the Houses of Parliament). Other standard pounds (perhaps "substandard pounds" would be a better description), thirty-six in number, were made of bronze gilt, and were distributed to different authorities in this country and abroad. The Weights and Measures Act, 1878, provides that the Board of Trade shall have the parliamentary copies compared with each other every ten years and with the imperial standards every twenty years. A platinum pound weight has one disadvantage in use as a standard for comparison with brass weights—that when weighed in air its apparent weight, on account of the difference in density of the two metals, is more than $\frac{1}{2}$ gr. greater than that of a brass or bronze weight which in a vacuum is exactly equal to it. Professor Miller therefore calculated the weight of brass or bronze standards verified by him not in terms of "P.S. 1844, 1 lb.," but in terms of an ideal brass pound; a temperature of 62 degrees Fahrenheit has also been substituted for the mean temperatures of 65.73 degrees and 65.62 degrees obtained in the weighings of 1829, and a barometric pressure of 30 inches for the rather lower ones of the earlier experiments. The Second Schedule to the Act of 1878 gives a long list of "secondary standards" of weight and measure which, at the time that the Act came into force, were in uso under the direction of the Board of Trade; these include avoirdupois weights from 1dwt. to 56lb., troy weights from 0.001oz. to 500oz., and "decimal grain weights" from 0.01gr. to 4,000gr. Section 15 of the Act provides that measures of capacity are to be derived from "ten imperial standard pounds

weight of distilled water weighed in air against brass weights" at the temperature and pressure we have just mentioned, this quantity constituting a gallon. The mention of brass weights indicates that Professor Miller's calculation had already been officially recognised. A provision that is likely to be overlooked in commerce is contained in Section 20 (2). "Drugs, when sold by retail, may be sold by apothecaries' weight." By Section 44, weights of 4oz. and upwards are stampable with a district mark as well as a verification mark.

The use of the metric system in this country was originally made legal by the Metric Weights and Measures Act, 1864, which was repealed by the Weights and Measures Act of 1878, although a table of metric equivalents of imperial weights and measures formed the Third Schedule of that Act. In 1894 a Select Committee of the House of Commons recommended that the use of the metric system be made compulsory in the United Kingdom two years later. The legislative outcome of this recommendation was the passing of the Weights and Measures (Metric System) Act, 1897, which again legalised the use of the system in trade. Fresh standards of weight and length had, as a consequence, to be authorised. The British Government had declined, in 1790, a request that the Royal Society should co-operate with the French Academie des Sciences, which had been commissioned by the National Assembly to devise a system of weights and measures based on a natural constant. The preliminary work was then entrusted to five members of the Academie, who, subsequently joined by a sixth member, drew up and presented a report in 1791. As is well known, they selected a quadrant of the meridian as their natural constant, and recommended that its ten-millionth part be the primary unit of length, and hence of weight and measure; the decimal scale and the use of a measured quantity of distilled water *in vacuo* at 4 degrees centigrade were other cardinal features of the scheme The next seven years was occupied mainly in measuring an arc of the meridian extending from Dunkirk to Barcelona, a task carried out amid many difficulties by two members of the Academie. The unit adopted for this undertaking was the existing standard toise, a rectangular bar of polished iron about 76.7 British inches in length, constructed in 1740. Four bars of platinum each two toises long were made for the survey; each was fixed at one end to a brass bar, leaving the other end projecting a few inches beyond the corresponding end of the brass bar, with the object of facilitating temperature observations. The calculations arising from the report, which was dated April 30, 1799, resulted in the construction and comparison of four potential standard metres of brass; one of these was eventually selected, and on it were based two metres of platinum and twelve of iron. Comparisons and corrections were continued until differences of less than 0.001 millimetre at the temperature of melting ice were found; it was then decided that the two platinum metres should be kept in Paris and that the twelve iron ones should be distributed among the countries represented on the Commission. The unit of metric weight was defined as the weight *in vacuo* of a cubic decimetre of distilled water at 4 degrees centigrade. A brass cylinder holding more than this quantity was ordered, and by means of an elaborate



CORNER OF THE MEDICAL PHARMACEUTICAL MUSEUM AT AMSTERDAM

A fine old balance will be seen on the table at the left wall. Many items from this splendid Museum have appeared in our pages.

[*Courtesy of Professor Van der Wielen*

system of ruled lines and the use of thirty-two brass measures the requisite calculations were made. This constituted a kilogram; subsequent determinations of the weight of this quantity of water in England, Sweden, Austria, and Russia gave results ranging from 999.653 grams to 1,000.48 grams, leaving the theoretical standard in a sufficiently strong position for all practical purposes. The primary platinum metre and kilogram were legally constituted as standards in France on December 9, 1799, and were deposited at the Palais des Archives, a copy of each being sent to the Paris Observatory.

The question of introducing the metric system into this country was first raised in the House of Commons on March 15, 1816, when a motion for comparing the standard yard with the standard metre was carried. The investigation was entrusted to the Royal Society, and Bird's standard yard again passed from the custody of the Clerk of the House. It was not used as a basis, however; two platinum metres, verified by Arago, were obtained from Paris, and were compared with a length of 39.4 inches on the Shuckburgh scale of 60 inches, constructed in 1796. After making the necessary calculations, the length of the metre was fixed as 39.37079 inches, and the ratio (39.3708 inches) was adopted in the Third Schedule of the Weights and Measures Act, 1878. As a matter of fact, it is actually the scientific equivalent when each standard is taken at its own proper temperature. Chisholm regards the brass metre as measuring 39.382 inches at 60 degrees Fahrenheit, and the Schedule to an Order in Council on May 19, 1898, gives the equivalent for the purposes of the Act of 1897 as 39.370113 inches. A similar revision of the relation of the kilogram to the pound has come about. In 1844 Professor Miller went to Paris at the request of the Standards Commission, and after many weighings and calculations decided that the kilogram was equal to 15,432.34874 gr. or 2.20462125 lb., and the imperial pound to 453.5926525 grams. The Schedule to the 1898 Order in Council gives the equivalences as 15,432.3564 gr. or 2.2046223 lb. and 0.45359243 kilogram respectively, these being based on fresh determinations.

The French Government passed legislation more stringently enforcing the metric system in 1837; and in 1872 the subject assumed a wider aspect by reason of the first meeting in Paris of the International Metric Commission, consisting of fifty delegates from twenty-nine countries, including Great Britain. A new sectional form of bar was adopted for the standard metre; the shape of the standard kilogram was not changed, but both were to be constructed in future of an alloy of platinum 90 per cent. and iridium 10 per cent. Great Britain definitely joined the Convention in 1884: an international committee of weights and measures which was evolved from the Commission forwarded a new standard metre and a new standard kilogram to the Board of Trade in 1889, and a standard metre of a different pattern in 1894. In the construction and testing of these standards sixteen men of science took part. The kilogram mentioned, identified in the Act of 1897 as No. 18, has been verified to a probable accuracy of 0.002 part in a million. The influence of the metric system may be traced in the legalisation of a "cental or new hundredweight" by Order in Council in 1879 and of a half-cental by the same means in 1903.

Reference has been made to the arrangement for the safe custody of the British standards. From 1734 till the Standards Department of the Board of Trade was set up, the Elizabethan hundredweights to which we have referred had been kept in the chapel of the pyx in Westminster Abbey. In the volume on the Abbey issued by the Royal Commission on Historical Monuments in 1924, Dr. M. R. James writes:—

"... the ground-floor buildings next to the chapter house (technically they are called the undercroft of the dorter) have some claim to be considered part of the Confessor's building. They belong to the years immediately before the Conquest or immediately after it; it is not really possible to say which. They once formed a single long hall; now they are divided by a party wall. The portion next the chapter house is called the chapel of the pyx, for in it was formerly kept the pyx, or box, containing the specimens of the current coinage in gold and silver which were periodically tested by comparison with certain standard trial pieces of gold and silver. The latter continued to be kept here for some time after the pyx had been transferred to the mint, but are likewise now transferred. Until that time the trial of the pyx was held here every five years or so."

Dean Stanley, in his "Memorials of Westminster Abbey," gives a similar account of the pyx chapel or chamber. The massive double doors (which are of later date than the structure itself) were at one time secured by six locks, three on each door, and each set of three keys was in charge of a separate official. The chests in which the standards were kept are still preserved. It is considered probable that the jewel tower or jewel house, a building of three floors at the north-east corner of the Dean's garden, assigned to the Board of Trade in 1866, is also an ancient depository for standards of weight and particularly of coinage.

The varying arrangements put in force from time to time for the inspection of weights and measures are not without interest. For many centuries the administration was carried out under the authority of courts leet—an ancient form of local tribunal which had extensive powers, and, although now deprived of most of them, is hardly yet extinct. By a statute of the year 1266, town juries were empowered to test weights and measures; by a statute of 1389 this duty was delegated to clerks of markets; in 1494 head officers in every city and town were enjoined to carry out the task; and modifying legislation (chiefly, apparently, to correct abuses by clerks of markets) followed in 1640. Local usage counted for much; this, in 1503 and 1531 certain City of London companies were given powers of inspection over certain trades or vocations. There were also many private Acts or enactments of limited application. In 1694 and 1701, for instance, statutes were passed forbidding the sale of Chester salt and rock salt otherwise than by weight; and in 1699 it was laid down that a barrel of vinegar must contain thirty-four gallons. Finally, in 1795, examiners were appointed somewhat on the lines of the present-day inspection arrangements. That their ministrations were not superfluous is instanced by the traditional story of the pedlar who used his yardstick as a staff when on his rounds. Eventually, it is pleasing to add, he reformed and broke it.

Scotland

ANCIENT Scottish standards included the Troyes pound, which was one-sixteenth of the Lanark stone, or 7,609 avoidupois grains (this was also known as Dutch weight); and the Tron pound, generally used for such commodities as meat, butter and hay. The Tron pound varied according to locality; in Edinburgh it was 9,622.67 grains. In 1835 it was decreed that "fiar prices" (i.e., standard prices), by which the average prices of all kinds of grain were fixed annually, should be related to imperial weights and measures. Formerly the Scottish pint (the "stoup of Stirling") was taken as the standard for liquids; it was defined in an Act of 1618 as being "3 pounds 7 ounces of French Troyes weight of clear running water of Leith." The Edinburgh firlot, containing 2,214.32 cubic inches, appears to have been the standard for wheat, while a firlot kept at Linlithgow, and equivalent to 3,230.3 cubic inches, was used for barley and other grain. The system of the old Troyes (or Lanark) weight was easy to memorise, namely, 16 drops=one ounce; 16 ounces=one pound; 16 pounds=one stone. Some of the dry measures have quaint names: 4 lippies=one peck; 4 pecks=one firlot; 4 firlots=one boll; 16 bolls=one chalder. A Stirling pint of distilled water weighed 26,306.982 grains at 62 degrees Fahrenheit. Below the pint in liquid measure were the choppin, mutchkin, and gill. Measures of length and their derivatives also differed from those in use in England—e.g., forty-eight Scottish acres were equivalent to about sixty-one English acres. Edinburgh possesses a valuable collection of ancient Scottish standards, including a Stirling pint, a choppin of the year 1555, a mutchkin dated 1767, a gill of 1737, and a set of Lanark stone weights dating from 1618. In the council chamber at Linlithgow also are preserved several ancient standards of various denominations.

Channel Islands

IN his book on weights and measures, H. J. Chaney points out that the old Norman system is still in use in the Channel Islands, the Jersey pound weighing 5,761 avoirdupois grains, like the "livre de la Vicomte de l'Eau" or the ancient standard of Rouen. A Jersey Act of the year 1625 gives the "estandard du chasteau" as equivalent to ten pots (in modern measure, 4 gallons 2¾ pints); the Jersey quart was the twentieth of the estandard. The pound and "cabot" were legalised in the Island in 1593, 1617 and 1625; and the King in Council confirmed these standards in 1717.

India and the Far East

INDIAN native weights and measures still survive side by side with those of the imperial system. The authorities of Calcutta and Bombay have been provided with standards of the tola (=180 grains) and its multiples and fractions, from 1000 down to 0.001. The mean temperature for weight calculations in India is 85 degrees Fahrenheit. In Northern India the principal weights related to the tola (the weight of a rupee) are the seer (70-100 tolas), the mun or maund (usually 40 seers), and the pusseree (5 seers). The seer is divided into 16 chittacks. In Southern India the maund generally equals 40 cutcha seers, and the seer is equivalent to 24 rupees. In Madras the maund is taken as 25 avoirdupois pounds and is divided into 8 viss. Other local India weights are the candy (20 maunds) and the tank (1/72 seer). In the Straits Settlements the following system obtains: 10 hoons=one chee; 10 chee=one tahil (1⅓ oz.); 16 tahil=one kati; 100 kati=one pikul. In Burmah one kyeng-rwe is equal to one seed of *Abrus precatorius* (reminding us of the traditional wheat grain of the old English standards); 2 kyeng-rwe=one rwe-gyee; 4 rwe-gyee=one pai-gyee; 2 pai-gyee=one moo; 2 moo=one mat; 4 mat=one kyat; 100 kyat=one piet-tha (3.652 lb.). Similarly curious names are given to measures of capacity (derived from a variable "teng" or basket) and those of length.

French Apothecaries' Weights

THE history of the weights used by the old French apothecaries and their successors is sufficiently curious, and somewhat more complicated than might be supposed. It seems pretty certain that in the Middle Ages "apothecaries' weight" was practically universal through civilised Europe for dispensing purposes, though there were numerous slight local divergencies. Guilhermez, in his "Poids et Mesures du Moyen Age," states that in France its use dates "at least as far back as the sixteenth century." He adds that the scruple of 20 grains was borrowed by the medical men of Northern Italy from the famous School of Salerno, and that the medicinal pound of 5,760 grains had an enormous vogue throughout Europe "at least from the epoch of the Renaissance." Benancio assures us that the French apothecaries used it in 1561.

The first Pharmacopœia of the Faculty of Medicine of Paris, printed in 1638, a thin parchment-covered quarto of about a hundred pages, is to be found in the library of the Paris Faculty of Pharmacy. In it we have:—

Granum hordei modicé crassum cuius signum ...	gi.
Scrupulus pendet grani viginti	℈
Drachma continet scrupulos tres	ʒ
Vncia pendet drachmas octo	℥
Libra medica est unciarii duodecim	lb.

It would be natural enough to suppose that the use of this "apothecaries' weight" continued in France down to the epoch of the Revolution and the consequent introduction of the metric system. But let us consult the Paris Pharmacopœia of 1732—less than a hundred years later. Here we find:—

Granum quod coquat pondus grani hordei modicé crassi
Scrupulus quæ pendet grana viginti quatros [not 20]
Drachma quæ continet scrupulos tres
Uncia quæ est drachmarum octo
Libra quæ amplectetur uncias sexdecim [not 12]

Exactly when the scruple of 24 grains and the pound of 16 ounces were adopted by the French apothecaries we have not been able to trace, but it was evidently between these two dates (1638 and 1732). This later system (16 oz.=1 lb.) was termed in France "poids du marc." A reference to the famous Encyclopædia published just before the Revolution will show that its use continued, and that the scruple was sometimes called a "denier" and the drachm a "gros." The old apothecaries' weight of 5,760 grains to the lb. is duly tabulated in this work, but with the note that it is no longer used. The system then in use was:—

24 grains	= 1 denier
3 deniers	= 1 gros
8 gros	= 1 once
2 onces	= 1 marc
2 marcs	= 1 livre

Many of our readers have probably seen in collections the curious "nests" of weights in use before the Revolution. It has been asserted that the term "poids du marc" originated in the fact that these nests of weights usually terminated by the "marc" or half-pound; if this were so, there were exceptions to the rule.

Then came the Revolution. The metric system was made compulsory, nominally at least. But the popular impression of its immediate general adoption by the public is another statement that requires qualification. Let us take up the French Codex of 1837—nearly half a century after the Revolution—a work on which Pelletier and Caventou, Robiquet and Soubeiran collaborated, with Orfila as president. The preface states:—

"The pound used in pharmacy before the adoption of the metric lb." (note the word 'pound,' not 'kilo,' is used) "was the poids du marc . . . But as *the use of decimal weights has not yet generally spread in pharmacies* ('officines') we have thought it necessary to express the weights of substances used in pharmaceutical preparations . . . by the use of the old denominations."

And if we turn to the actual text, we find that while chemicals are given in decimal figures, the galenicals are specified in ounces and drachms. Still more curious does it appear if we look more closely. The preface states: "the metric lb. is 500 grammes." The ounce of the Codex of 1837 was therefore 31¼ grams. Thus it would appear that in the Middle Ages, and down to the Stuart epoch, the French apothecary used an ounce of 480 grains: from the time of our first King George to the Revolution, one of 576 grains; from the Revolution to the accession of Queen Victoria, one of 480 grains, roughly.

Soubeiran, in his Nouveau "Traité de Pharmacie" (1836), explains that the usage of the gram is obligatory in France, "but the habit adopted by the public of using the pound has not been entirely conquered, and to preserve the unity of weights, the Government has decreed that the pound must be an exact division of the kilo. The livre de marc weighed 489.5 grammes; it has been made 500 grammes." In the same work he points out that the medicinal pound of 12 oz., each of 8 dr., is in general use in Europe, but that the scruple, though generally 20 grains (Austria, Belgium, Germany, Great Britain, Holland, Prussia, Russia and Sweden), is occasionally 24 grains (Spain, Rome and Tuscany); also that the ounce differs in eleven countries, though usually slightly. C. F. Lehmann-Haupt and L. Winkler give, in "Die Herkunft des Apothekergewichts," the following values among others. The City of Nürnberg (Nuremberg) established in 1555 an apothecaries' pound of 357.66 grams, which was adopted by many neighbouring authorities and held its place for a long period. In Prussia, a royal decree of the year 1816 legalised a pound weighing 350.78348 grams. From 1851 to 1876 Switzerland had a standard apothecaries' pound of 375 grams. The Castilian pound weighing 460.142 grams was heavier by a third than the Arabic pound. The Portuguese medicinal pound weighed 344.232 grams. There was an ascending scale of pounds in Italy, from that of Parma (328 grams), through those of Rome (339.16 grams), Tuscany (339.54 grams), and Modena (340.46 grams) to the Italian pound of 341.1 grams. We might continue to amass facts of this kind till we wearied the attention of our readers, which has, perhaps, been already sufficiently tested in this lengthy narrative.

A VISIT TO PENWORTHAM MILLS

ABOUT a mile from "proud" Preston, in the heart of the cotton county, are the mills of Vernon & Co., Ltd., a conspicuous landmark among the green fields of Penwortham and ideally placed in clean air. It is only about thirty years since Messrs. Vernon & Co. entered upon the manufacture of surgical dressings. That so large a business as that now carried on in their extensive mills has been built up in the interval is a tribute not only to the enterprise and ability of its founders but also, we may add, to their courage. As will appear in the following paragraphs, the manufacture of surgical dressings, and in particular of cotton-wool, is a highly specialised branch of the cotton industry; and before we give our impressions of a tour of the works made a few weeks ago under the guidance of courteous experts, it may be of interest to mention that Messrs. Vernon's reputation was built up, in the first instance, on their lints, plain and boric. Pharmacists who are old enough to remember the introduction of boric lint into medical practice, and their own attempts at making it in the shop or possibly in domestic premises, will recall with amused regret the stiff abominations that were sometimes turned out. No problem has, in fact, afforded manufacturers of dressings more difficulty than that of finding the right methods of making and borating absorbent lint. Messrs. Vernon worked at this crux until it was solved. The present directors, Alderman J. Dewhurst, Mr. S. Crabtree, and Mr. A. Crabtree, have long been associated with the company, the two first-named since its commencement. This continuity in the *personnel* of the management helps obviously to maintain in a definite way those standards of quality which have earned for the company its present reputation in the dressings trade.

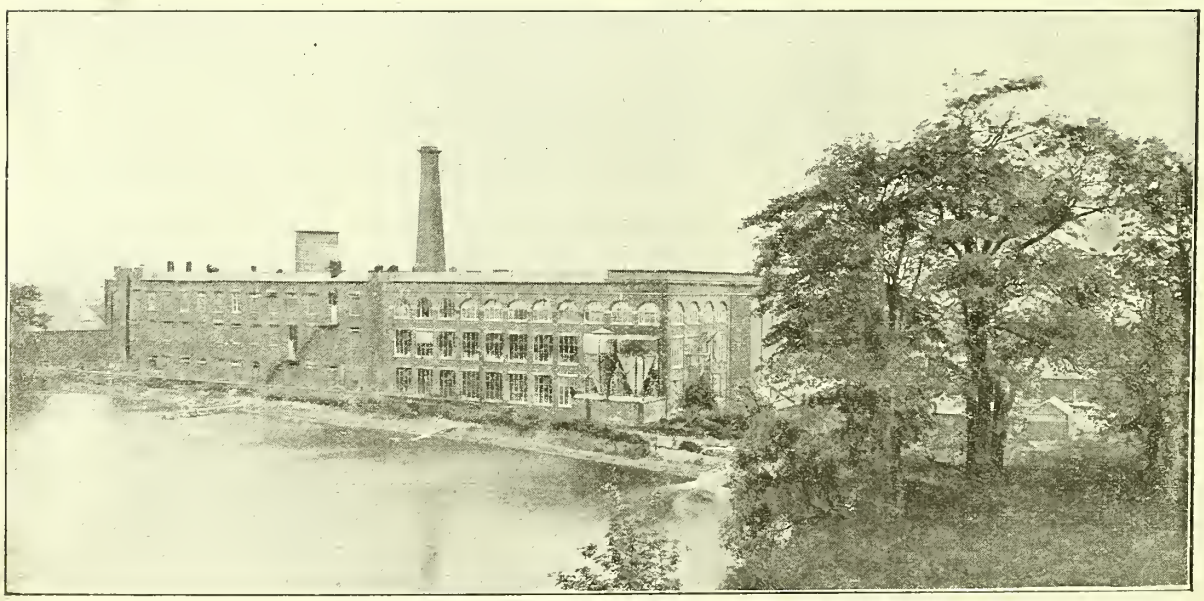
Raw Materials

WE may envisage some of the problems that confront the manufacturer of cotton-wool by inquiring what would happen if one day a customer walked into a pharmacy, dumped down a parcel of raw cotton on the counter, and asked to have it converted into absorbent "wadding." The average pharmacist knows that the fibre of the cotton plant is a small, ribbon-like piece of impure cellulose with a spiral twist; he knows, too, something about saponifying surplus fatty matter and about bleaching. But would he know whether the material given him was certain to yield a practicable end-product? Just as the competent chemist can tell several things about a powder by warming it on the point of a knife, so the cotton expert can tell a good deal about raw cotton by the process of taking a pinch of it between his two thumbs and forefingers. It must have the right length of staple, spinning properties, twist (so as to impart the familiar "cling" to the cotton-wool), and, possibly the most important of its qualities, "bant," which may be briefly defined as resistance to tension. (Incidentally, the expressiveness of the short technical terms applied in the cotton industry is very marked; "bant" is a case in point, and Wright's Dialect Dictionary gives some delightful examples of its use by metonymy.) A cotton-wool having bant is vastly different from the lifeless laps that constitute much of the cheap cotton-wool imported into this country.

Very little happens to the raw cotton before it reaches Lancashire. As it is plucked from the plant it is first separated from foreign matter by the process known as ginning. It is then packed in bales under very high pressure, the object being to reduce the bulk to a minimum for economical shipment. These bales vary in weight from 400 lb. to 700 lb., and are compressed to almost stone hardness. Most of the cotton imported goes to the great spinning mills. Some of this comes back to the surgical dressings section of the trade in the form of yarn for making gauze and bandage cloth. But for the present we will follow those bales that come direct from the cotton fields to the cotton-wool section of Penwortham Mills. Some forms of cotton-waste obtained from spinning mills are also used in the making of absorbent cotton-wool.

Stages of Cotton-Wool Manufacture

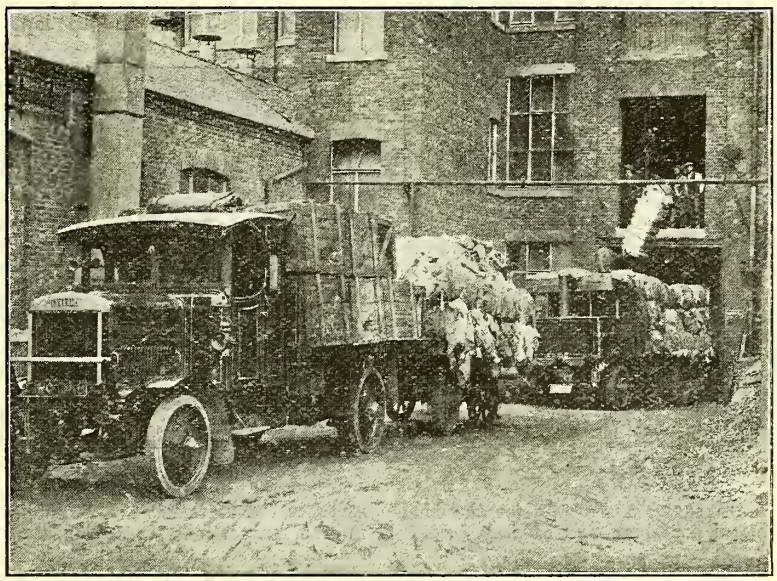
FIRST of all the bales of cotton have to be broken up and restored to their earlier condition as heaps of cotton fleece. A machine known as a bale-breaker carries out the first part of this process, which consists of tearing



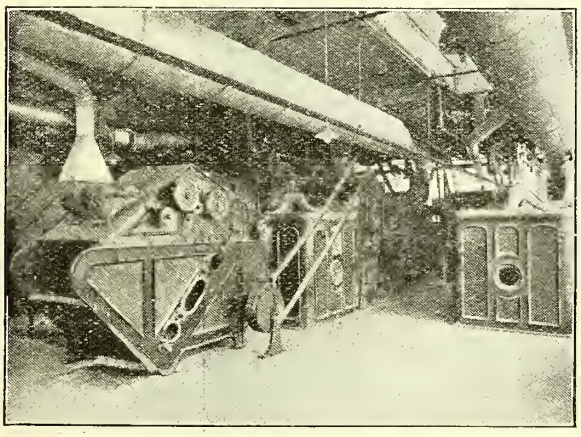
GENERAL VIEW OF PENWORTHAM MILLS

apart the matted layers of cotton fed to it by the operator. The cotton is then passed through other machines in order to open it up, tease it out and more completely separate it from seed and other foreign matter adhering to the fibres.

The first processes of bleaching continue the cleaning of the fibre, but in them we pass from cleaning by physical action to cleaning by chemical action. In other words, they differ from the processes just described, inasmuch as they aim at cleaning the cotton itself now that it has been separated from the foreign matter brought from the cotton field. The cotton fibre in its natural state is an oily entity with no particular affinity for water; it accordingly passes through a series of boilings in a closed chamber known as a kier before being subjected to the action of the bleaching liquor, the object of the boilings being to saponify the greasy impurities present so that they can be washed away. The liquor which carries out saponification is pumped into the kier by a method that ensures its circulation throughout the mass of cotton. When sufficient time has elapsed for the liquor to do its work, water is pumped into the kier and circulated in the same manner so that the saponified greases are removed.



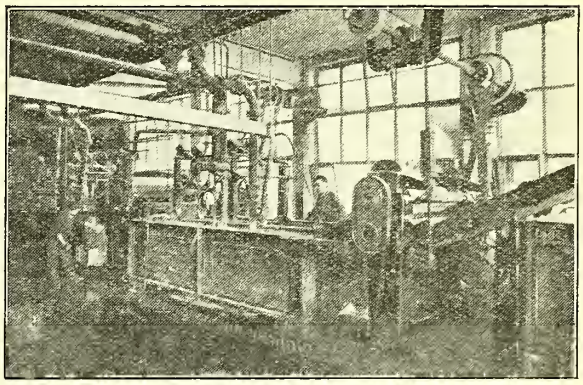
BALES OF COTTON ARRIVING AT THE MILLS



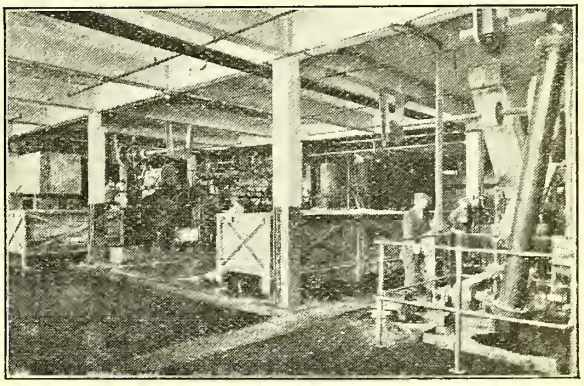
BALE BREAKER AND OPENER PLANT

Bleaching

When washing is finished, the kier is opened and the cotton goes into the bleaching liquor, after which it is allowed to stand for several hours. While thorough bleaching must be allowed, over-bleaching is avoided by a process which eliminates any free chlorine remaining in the cotton. The bleached cotton is now ready for the

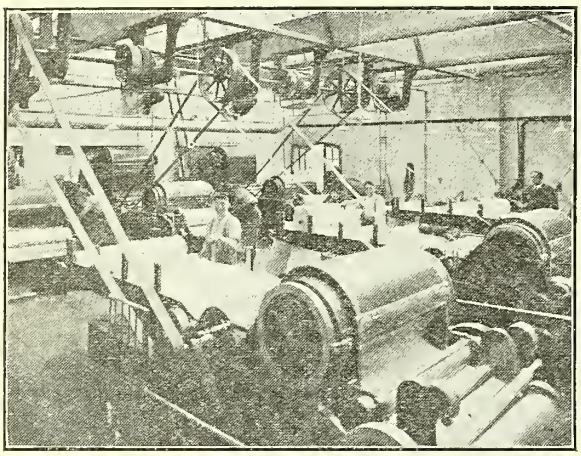


PART OF THE BLEACHING MACHINERY



IN THE BLEACHING DEPARTMENT

finishing which imparts to good cotton-wool its absorbency, its bright lustre and its "scroop," felt when cotton wool is pressed in the hand, and roughly definable as crispness. The next process is drying. The drying plant consists of a series of superimposed heated chambers, through which the cotton passes in succession, and from which it emerges thoroughly dry (falling into chambers



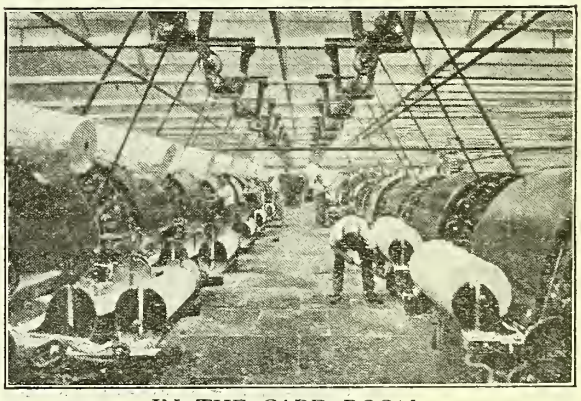
SCUTCHING MACHINES

after the fashion of stage snow) and ready for the final manufacturing processes of scutching and carding.

Scutching and Carding

But for a certain amount of matting the cotton is now in form, much as it was when it entered the bleach yard —i.e., in fluffly heaps, with the essential difference that instead of being grey and dirty-looking it has become white. In the processes of scutching and carding these heaps of fluff are formed first into rough laps by the scutcher and then into sheets or rolls of cotton-wool by the carding engine.

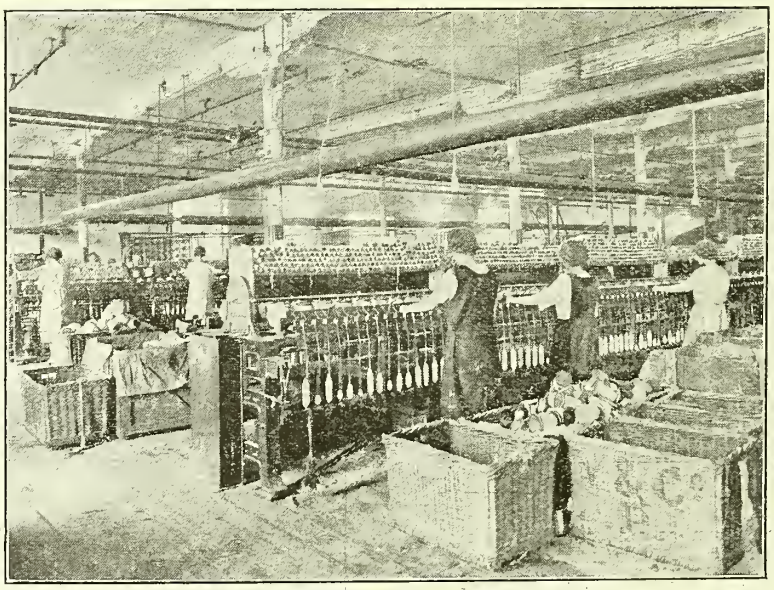
There are two scutching processes, carried out respectively by the opener and finisher scutchers. In the opener scutcher, the cotton as it comes from the dryer is again opened up and teased so that any foreign matter, such as seed shell or other leaf which may have escaped the previous cleaning, is now exposed and removed. This scutcher also forms the cotton into laps or rolls of cotton. These laps are composed of the different types of cotton which have come from the bleach yard, and are of approximately uniform thickness and weight. By an arrangement at the feed end of the finishing scutchers, a number of laps can be fed at once to this machine, where they are again broken up as in the opener scutcher. But in this process a blending of the materials takes place, so that in the lap that comes from the



IN THE CARD ROOM

scutcher the materials are thoroughly mixed and blended in the proportions in which they were fed to the machine. From the scutching-room the laps or rolls of material pass to the card-room, where the final process of manufacture takes place.

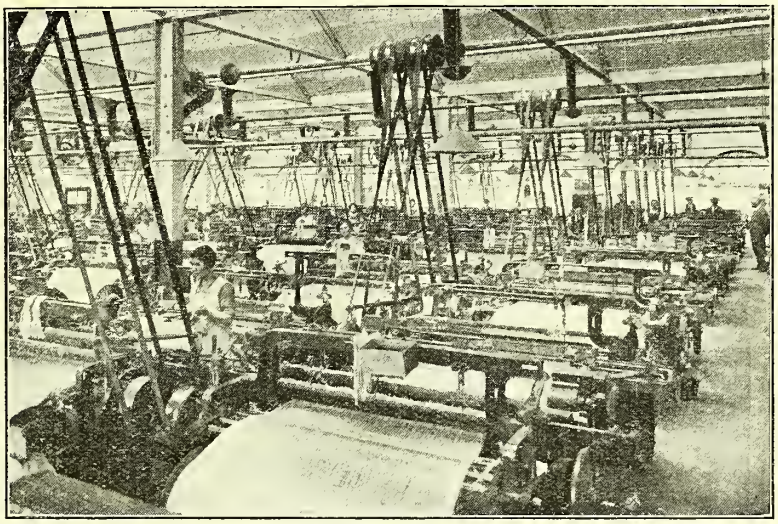
The carding engines, or cards, as they are called, differ from the other machines described, and are possibly the most intricate and astonishing of all these almost human types of apparatus. There is no air current to separate the cotton fibres from the other matter which may still be mixed with it. The cleaning carried out on the cards is done on the combing principle by a series



WINDING FRAMES

of revolving cylindrical rollers covered with card-wire, the wire being a series of pins supported in a cloth foundation. The lap or roll of cotton from the scutcher is fed between a fluted roller and a special feed, which grip it tightly and hold it

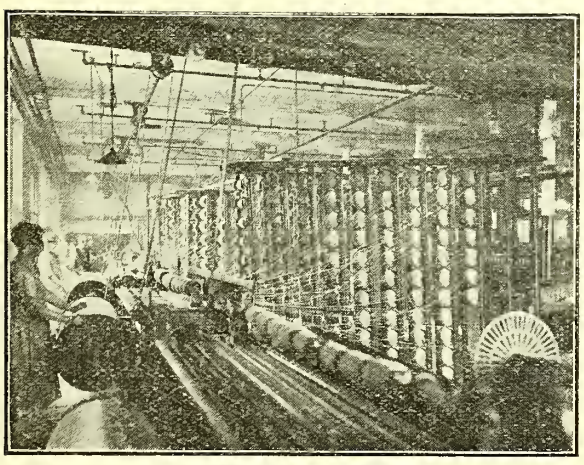
while the first cylindrical roller or "licker-in," revolving at high speed, takes from the slowly fed roll a thin service of cotton. This cotton is carried next through a series of cylindrical rollers so that it passes from one to the other, and in its passage is cleaned from excessive nep (knotted formation) and any remaining foreign matter. The setting of the wire in these rollers is exceedingly fine, between seven and twelve thousandths of an inch, so that the fibres are practically individualised in their passage through the card. At the end of the process the material fed to the cards has been so evened out as to present to the doffing comb a very uniform fleece or sliver of cotton. This comb collects the clean cotton fleece from the last cylinder, known as the doffer, to go with many others to form a roll of cotton-wool of the desired thickness. The cotton-wool is now ready to be taken to the making-up room, where it is packed in the various forms in which it reaches the chemist for retail sale.



WEAVING SHED

The Weaving Section

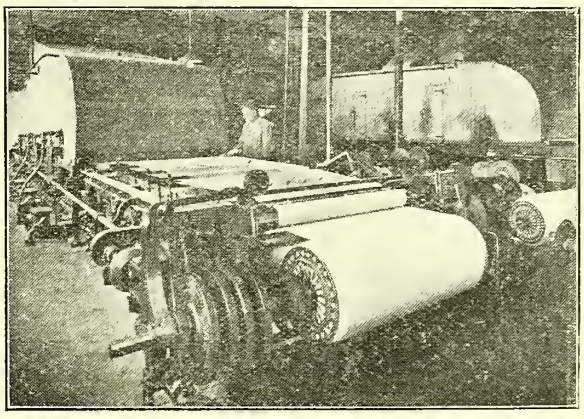
IN the weaving section of the mill Messrs. Vernon weave the lint cloth for which they are famed, and also gauze and bandage cloth. The yarn is received from the spinner in the form of cops (conical rolls). The cops come first to the winding department, where they are wound on to bobbins on the winding frames (p. 836). The bobbins are then fixed on a frame known as a warping creel, from which they are wound on to the back beam ready for passage through the slashing-frame. These beams are of stated width, with a specified number of ends or threads on the beam. There are as many bobbins on the creel from which the beam is run as there are ends required on the beam. The beams go to the slashing frame, which takes and combines the number of beams necessary to provide the weaver's beam for the loom. In their passage through the slashing frame they are sized in order to give to the yarn a degree of elasticity, so as to facilitate the weaving process. The beams are then attached to the healds and reeds for weaving purposes, and finally "gaited" up to the loom. In cloth bleaching the main processes conform with cotton-wool bleaching; but unless lint cloth bleaching and finishing is thoroughly understood, the successful raising of lint is not possible.



WARPING CREELS

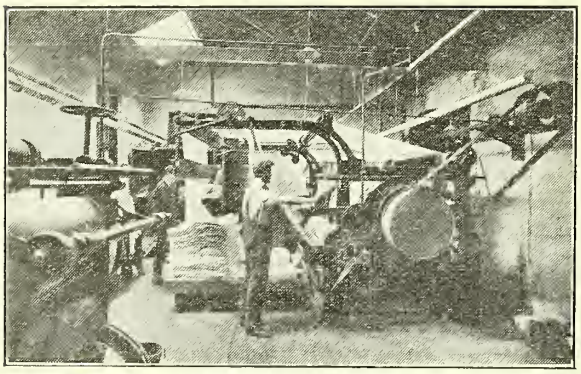
Lint Raising

The raising process in lint may be distinguished from flannelette raising in two ways; both processes are carried out at Penwortham Mills. In flannelette raising the weft (or cross) threads are raised, in lint the warp (or lengthwise) threads. In the flannelette the raising is done more in the way of a scratching process, the cloth passing over rapidly revolving rollers, clothed with myriads of projecting wires which scratch up the nap on the cloth. In lint the raising is by means of a knife edge, which bursts the fibres of the warp threads and spreads their fleece as a downy nap on the surface of the



SLASHING FRAME

cloth. The cotton domette and lambskin used in the surgical dressings trade are raised on the flannelette machine. A corner of the lint-raising department is shown in the next illustration.



DOMETTE RAISER

Medicating

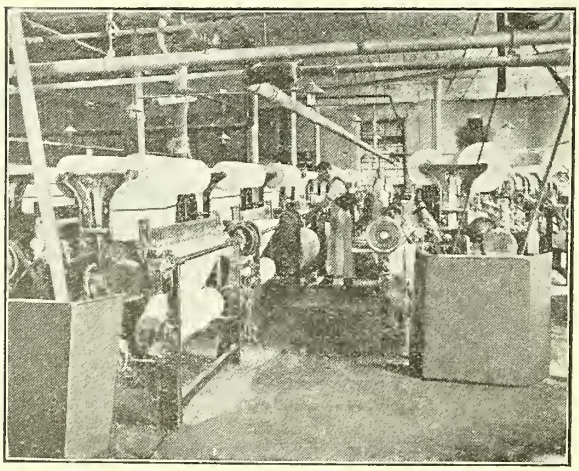
Success in the medication of surgical dressings depends primarily on an understanding of the materials to be medicated, the drugs or chemicals used and the determination, by experiment, of the best methods of charging the materials. The characteristics of Vernon's boric lint are due to the fact that their system of medication has overcome the inherent difficulties of the problem, so charging the cloth that the acid may be said to be in it rather than on it, while the softness of plain lint is retained. In the laboratory of the mills the processes of medicating are determined, and the results tested, the medicating sections of the mill being under the direct charge of the works chemist.

Sterilisation is, in the first instance, a manufacturer's question—because, when one thinks of it, there is no possibility of obtaining sterilised dressings unless the dressings selected are sterilisable. Sterlising is a process that brings to light defects in materials that are quite unapparent to the eye. Inadequate cleaning and other faults in preparing dressings will be exposed when the materials are sterilised. The probability that some of the dressings will undergo this process makes it imperative to see that all dressings are so watched while in process of manufacture that they will sterilise without discoloration or other damage.

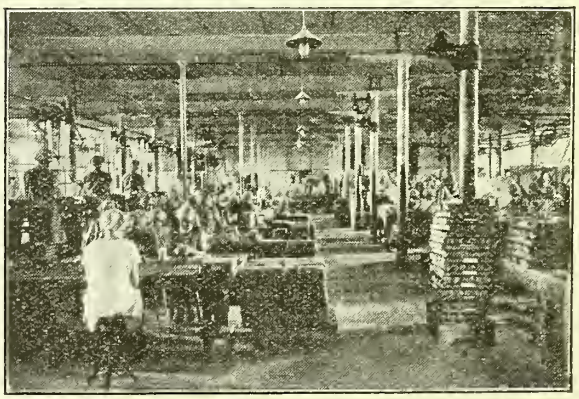
The last photograph on this page shows the general making-up room, to which all dressings pass to be prepared in the various forms in which they are required for use by hospitals or for sale by chemists. In the course of a chat with the managing director of the company, we learned that, contrary to a general belief, boric lint is increasing in popularity. A rapid survey of the world from the point of view of the demand for dressings discloses some curious differences. Without naming individual countries—which to do were perhaps invidious—it may be indicated that some colonies and foreign countries are, as a whole, more advanced in the matter of asepsis than the United Kingdom, while others are still, so to speak, living in the antiseptic age. These varying requirements Messrs. Vernon meet with scrupulous regard for the details of the processes involved, imparting to them, as was evident during our visit, the precision of a science and the refinement of an art.



THE LABORATORY, PENWORTHAM MILLS



IN THE LINT ROOM

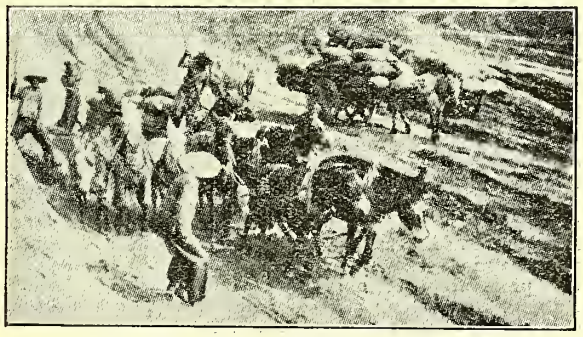


GENERAL MAKING-UP ROOM

THE SOYA BEAN INDUSTRY

An Exhaustive Survey dealing with the Cultivation, Production and Commerce of the Soya Bean and its oil, cake meal and its Applications to Manufactured Products

THE original home of the soya bean plant (*Glycine hispida* or *Glycine soja* is Manchuria, and it has long been cultivated all over the East between Japan and Java. According to Aiton it was introduced into England in 1790, but notwithstanding its recommendations the soya bean has never been cultivated to any extent in England and the Continent of Europe. The plant was introduced into the United States in 1854 and was grown to a small extent in the Southern States, and from 1885 its cultivation as a forage crop has gained in importance in many agricultural centres, as will be seen later in this article. A great deal of interest has been taken in soya by other countries, including Cape Province, Natal, East Africa, Gambia, Mauritius, Australia, Ceylon and India, but, strange to



INTERIOR TRANSPORT OF BEANS

say, all these efforts have been negative from a commercial point of view, showing insignificant results. Soya and its oil have long been used in the East for edible purposes and constitute a staple article of food in China and Japan. It is a very important article of diet for people whose staple food is rice, a cereal poor in proteid or nitrogenous substances. It was cultivated in Manchuria to meet the demands of China and Japan, but from the year 1908, when Messrs. Mitsui & Co., Ltd., brought their first cargo of 5,200 tons to Hull, Europe entered the field as a chief consumer, and since that year the Manchurian, or Soya bean has developed by leaps and bounds. The chief cause of this sudden development was certainly the last Russo-Japanese war, when agriculture in Manchuria was greatly stimulated, as that country had to provide for the large number of soldiers located there. At the end of the war the armies were withdrawn and Manchuria was obliged to export the surplus of its food products, mainly soya beans. Ever since then the demand has rapidly increased, and British oil-crushers erected machinery for producing the oil, further details being given later in this article under the heading "United Kingdom Trade." In 1911, Manchuria exported 1,500,000 tons of beans, 350,000 tons of which went to European countries and the remainder going to China and Japan. From 1909 to 1912 the greater portion of the Manchurian exports to Europe came to English ports, as Germany and other Continental countries imposed heavy import duties, which were subsequently abolished in order to meet English competition in the soap trade. Between 25 to 30 per cent. of the total Manchurian crop is absorbed for domestic consumption, the remainder being exported either as beans or in the shape of oil and cake, while well over 1,500,000 tons of beans are taken by the local mills. South Manchuria contributes about 65 per cent. of the crop and North Manchuria the balance. According to 1922 statistics, 600 mills were running there, with a daily capacity of 2,000 short tons of oil and 13,500 tons of cake. The Manchurian crushing industry dates back over a century. After the Chino-Japanese war in 1894-1895, Japan began to recognise the value of bean cakes as a fertiliser. Cakes had till then been only consumed in negligible quantity in China and were difficult to get rid of. Before the Great War, owing to an increased demand for cakes, Japan was affected by an over-production of oil, but since then the latter has become one of the most important articles in the world's markets for oils and fats. The rapid progress of the crushing industry in Manchuria has been greatly assisted by the facilities afforded by the South Manchurian Railway Co., this especially referring to the adoption of a system of common storage for beans and cakes. The company undertakes to keep or store these subject to examination by its officials as regards quality and weight. Thus unification in quality and weight and convenience for export, etc., are assured. The percentage of beans rejected by the officials as being not up to a standard varies from 6 per cent. to 7 per cent. on the whole of the quantities submitted for examination, according to the condition of the crop. The stock of beans at Dairen is usually the largest in January-February and the lowest in July-August. The Manchurian mills are run at a much lower cost than in Europe, wages being only about 0.70 to 1.00 yen per day there.

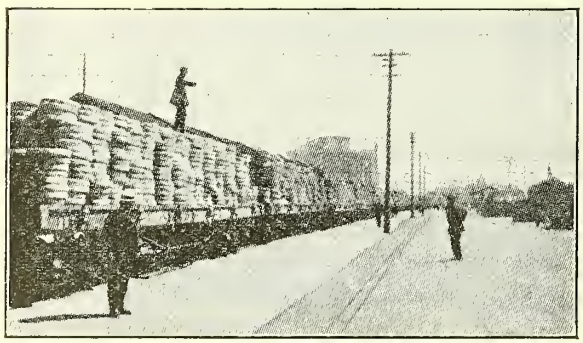
The crop season in Manchuria starts on November 1. The complete exports hence for the past season ending October 30 last amounted to 2,285,900 short tons of soya beans, of which 1,600,400 tons were for Europe, against 1,816,300 tons and 1,056,200 tons respectively for the preceding season. Of bean oil the total exports were 121,500 short tons, of which 60,000 tons were for Europe, against 188,600 tons and 175,600 tons respectively in 1926-27. About 60 per cent. of the exports of beans for Europe are dispatched through Vladivostock and 40 per cent. via Dairen, while the oil exports are in the proportion of 30 per cent. and 70 per cent. respectively. Dairen has become the world's greatest shipping port of vegetable oils, being the centre of the Manchurian crushing industry, with a capacity of over 50 per cent. of the whole of the latter. Next comes Harbin—the centre of North Manchuria—and Newchung and Antung.

The soya plant grows to a height of 40 inches, branching into heavy stems, carrying about 40 pods per plant, each pod holding three to five seeds. The soya flowers are pale lilac in colour, and are self-pollinating. The yield of soya bean per acre in Manchuria is 28 bushels from a sowing acreage of 20 lb. per acre. The climatic and soil conditions appear to influence seriously the oil content of the seed obtained. The yellow bean contains the highest oil and protein content, and the black the lowest. The Hokkaido bean contains the highest protein and the least fibre content. An authoritative specification for the supply of soya bean is as follows:—Crude protein 40 per cent. (minimum), soluble protein 4 per cent. (maximum), available protein 33 per cent., all calculated on the dry bean. The beans must be yellow in

colour, contain not more than 13 per cent. moisture, and be of specific gravity between 1.308 and 1.310. The oil content of 26 varieties of seed has been found to vary between 15 and 26 per cent.; the deciding factors in particular varieties being length of growing season, time of planting, time to reach maturity and the state of the seed when crushed. The range of constants from oil from various seeds examined were as follows:—Sp. gr. 0.922 to 0.926, refractive index at 25° C., 1.522 to 1.475, acid value 0.2 to 2.6, saponification value 190 to 195 and iodine value 123 to 132. The U.S.A. Department of Agriculture recognises 280 varieties of soya bean. The various types vary in colour, between white, yellow and black, and in shape from spherical to elliptical.

The beans are harvested in early September, when the Manchurian climate is almost invariably dry and bright, with a hint of early frost in the air. Threshing occurs during the interval until cold weather, and when the ground is frozen hard enough to bear heavy traffic the beans are hauled to the railway station in clumsy two-wheeled carts, drawn by 6 to 10 hardy ponies.

Upon occasion it is said that accumulations of beans to the extent of more than 100,000 tons may be seen at Anda, all out in the open and often stacked so high around the station as to hide it from view. Ordinarily, stacking in the open, through the dry, cold winters, with comparatively light snowfall, does little injury to the beans. Some careful owners, however, build their stacks in the form of houses, with high-pitched roofs to shed the rain or snow. Others, even more careful, cover their stacks with straw matting. Most of the beans,



RAILWAY TRANSPORT OF BEAN CAKES

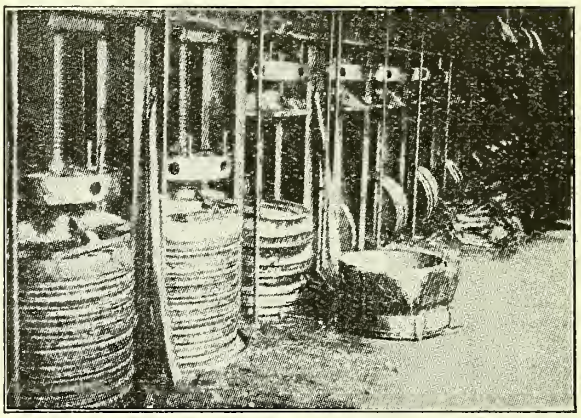
however, are left to the hazards of the elements without protection, and unless there is a warm spell and severe weather are rarely the worse for their exposure.

Station Anda, on the Chinese Eastern Railway, about 50 miles west of Harbin, is the centre of the great bean and wheat producing area of Manchuria, usually referred to as the Sungari Plains. Of the 5,000,000 tons of soya beans annually produced in China, considerably more than 1,000,000 tons are grown on the fertile plain lying in the bend made by the Sungari and Nonni Rivers and bisected by the Chinese Eastern Railway between Harbin and Tsitsihar. Chinese farmers from Shantung and Chihli, since the coming of the railway, have settled these lands and developed them into vast grain-producing regions. Station Anda is the railroad town to which the farmers from Peituanlintze on the north to Bodune on the south haul their grain for export abroad. By far the greatest proportion of Manchuria's bean crop is exported, only about one-fourth being retained for domestic consumption. The exports of soya beans in all forms—oil, bean cake, and otherwise—in 1927 amounted to 4,159,000 tons.

The Industry in Dairen.

Dairen is the commercial centre that controls the trade of all South Manchuria if not the whole of Manchuria, as the port of Vladivostok in North Manchuria is inaccessible to steamers during part of the year when the river is frozen. The raw products of Manchuria, the most important of which are cereals, beans, hides and skins and coal, along the Chinese Eastern Railway, the South Manchurian Railway and their branch lines, pass through Dairen when they are intended for export either to Chinese cities or foreign countries.

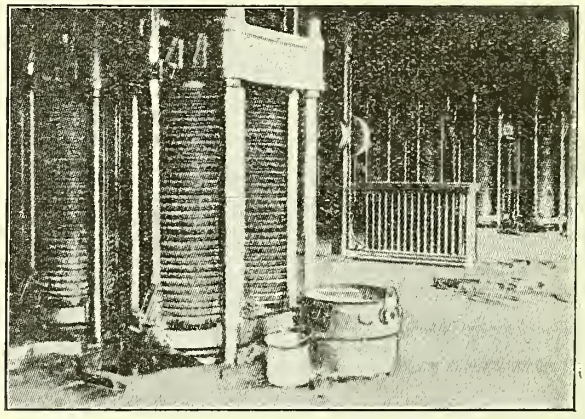
There are more than 60 bean oil mills in Dairen, of which only two big ones are Japanese owned, the rest



OIL PRESSING BY HAND

being all Chinese owned. While other manufacturing industries have gone into Japanese hands with the acquisition of the Leased Territory of Kwantung, Chinese seem still to have a strong hold on the bean oil industry. Japanese, however, are engaged in the more lucrative business of exporting beans and bean oil to outports. The industrial section of Dairen at the waterfront near the wharf is dotted with big chimneys and small smoke shafts, indicating the density of the bean oil mills. These mills differ from each other in amount of capital and methods employed in the manufacture of oil. Large bean oil mills have aggregate capital ranging from one to four million dollars, while small mills have capitals as low as several thousand dollars.

Altogether Manchuria has 300 bean oil mills, including small plants. Harbin has about 50, of which only two are Russian owned. Judging from the oil and by-products manufactured, Dairen seems to be a better locality for the preparation of oil. Other centres like Mukden, Antung, Newchwang and cities along the railways are in still less advantageous positions. Beans harvested in the C.E.R. and the S.M.R. territories and even in some remote hinterlands, where only mule carts can go, are transported to various destinations in freight cars. Each car contains 4,900 catties which can produce about five



HYDRAULIC OIL PRESSING

catties of oil, and about 1,000 beancakes, every cake weighing 46½ catties. The manufacturing process of bean oil consists of crushing the beans from which oil is to be extracted between millstones and heating the pressed residue over boiling water. Generally a power engine is

used to crush the beans after which the paste is shovelled on to a piece of cloth above the oven. With the aid of a wooden mould the crushed beans are made into small cylinders, wrapped up with a special kind of grass brought from the south, and edged in between two iron hoops. The contents in the cloth are thus made into the shape of a cake. The cakes are then placed in steel presses on which force is applied to squeeze out the oil. A big receptacle is placed beneath the presses to collect the oil. The cakes thus pressed become flat. The process of squeezing oil from cakes as described is done both by the steam in factories where modern machines are employed and in small mills where primitive methods are still in use. The difference between steam mills and the old-fashion mills lies in the quantity of production (not so much in the quality), and in the size of the beancakes. The number of presses in old-fashion mills is never more than two or three, while the smallest steam mills have no less than 20 in each, and large steam mills have as many as 100. The presses used in the large steam mills are of larger dimensions, with the result that the cakes are bigger and thicker.

Perhaps the largest bean oil mill in Dairen is the San Tai Oil Mill, the big chimney of which stands out prominently at the water-front. This is a Sino-Japanese enterprise. Hydraulic presses are used which are put into motion by steam pumps, exerting high pressure quickly. The hydraulic presses are from 3 to 3½ times more efficient than screw presses. The largest Chinese bean oil mill in Dairen is the Chen Kee Oil Factory, owned by Mr. Chang Peng Chen, a native of Dairen, who also operates a steamship company. He is the chairman of the Chinese Chamber of Commerce. There are 20 other Chinese bean oil mills on almost an equally large scale.

The residual pressed cake is used extensively in Manchuria and Japan as a staple article of diet. In European countries, pressed cake is used as a valuable cattle food, the protein content being about 45 per cent. In Holland and Denmark, pressed cake is considered to be superior to cotton seed cake as a cattle food, but in England the contrary is the case. It is used extensively in China and Japan, particularly for fertilising mulberry trees, and also for the "forcing beds" for sugar and rice nurseries. The composition of soya bean cake in comparison with cotton and linseed is shown in the following table :—

—	Protein Per cent.	Fat Per cent.	Extract Per cent.	Fibre Per cent.	Ash Per cent.	Water Per cent.
Soya cake ..	42.7	6.0	28.1	6.0	5.9	11.3
Cotton cake ..	33.9	7.8	35.7	7.3	5.5	9.8
Linseed cake ..	45.3	10.2	24.0	6.3	6.6	7.0

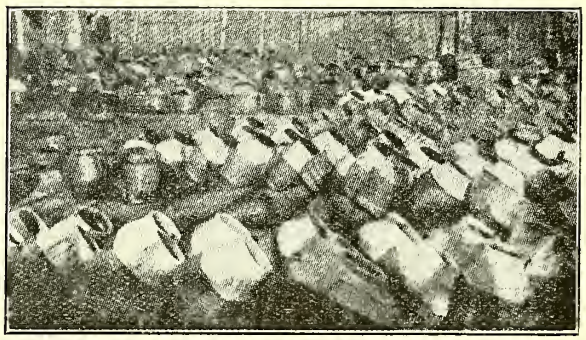
Growth of Consumption

It is perhaps not generally realised that in consequence of the marked expansion of the cultivation of soya beans in Manchuria, which, as already indicated has been accelerated through Japanese enterprise in that country since the Russo-Japanese war, the extraction of oil from this product (equivalent to fully 15 per cent.), represents approximately 10 per cent. of the total world oil production secured from the crushing of the various descriptions of oil-seeds, including other oil-bearing products, such as copra, nuts, kernels, olives, etc. An illustration of the growth of world consumption is afforded by the fact that in Europe alone in the past year about 1,500,000 tons of soya beans have been absorbed, against 1,000,000 tons in the previous year, an increase of 50 per cent. It is estimated that this season's Manchurian crop will yield another increase of 500,000 tons to 5,250,000 tons—a new high record comparing with crops varying between about 4,000,000 to 5,000,000 tons in recent years. In Japan and other Asiatic countries, there are also crops yielding normally not far short of 1,000,000 tons, while the United States also produce a fair amount, which is referred to later in this article. Japan has played the most important part in the development of the industry in the Far East, both in the raw or the by-products, chiefly soya bean oil.

As already indicated by the 50 per cent. increase in European imports in 1928 of the raw product, the crushing mills in Europe have increased their operations more or less in proportion, which has inevitably brought about a substantial shrinkage in importations of the oil to about 65,000 tons, this comparing with 165,000 tons for 1927. European imports of raw material will doubtless continue to increase, and those of Oriental oil tend to diminish, but at the same time, China is consuming increasingly larger quantities of oil from the mills in the Far East. The Japanese mills nevertheless have recently had to curtail their operations to some extent, due to the contraction in their export outlet for oil, while the local outlet for other by-products was less satisfactory and handicapped in the case of soya meal by the competition of imported cheaper manures. The growth of the consumption of oil in the Far East, particularly in China, is, however, considered an important factor in regard to the future of the industry.

The United Kingdom Trade

The British crushing industry already before the Great War was fully aware of the merits and trade possibilities of the Manchurian bean while heavy quantities



PAPER LINED BAMBOO BASKETS FOR CARRYING SOYA OIL

were then imported, which went chiefly to Hull, where the receipts in 1912 amounted to 147,317 tons, and in 1913 to 63,046 tons. During the war period especially, and until the year 1923, this trade between the Far East and this country was more or less in abeyance and in a large degree diverted to the United States via the Pacific Coast, this route affording the nearest and best outlet. During the last five years, however, a complete change has taken place in favour of the industry, due to the much greater quantities imported by the chief European consuming countries, particularly last year. Statistics for the United Kingdom covering the years 1916 to 1922 inclusive were as follows :—

Tons	U.K. imports		U.K. exports
	Soya beans	Soya oil	Soya oil
	Tons		Tons
1916 ..	65,364	Not available	4,555
1917 ..	25,049	3,502	11,260
1918 ..	Nil	595	2,500
1919 ..	61,565	29,683	8,282
1920 ..	14,978	18,001	13,449
1921 ..	61,425	16,473	10,385
1922 ..	59,357	20,357	8,289

It will be seen from the movement of supplies thus indicated that there was already a fair recovery over the armistice period or beginning with the year 1919, although returns have since been very erratic, but as shown by subsequent statistics covering the year 1923 and onwards, which are given later, with details of origin, British trade is being fairly well restored and should about hold its own in the future of this important and growing industry. There was certainly a sharp setback in 1926 in the receipts of soya beans, which resulted in much heavier importations of Oriental oil in the next two years, but this was sharply reversed in 1928, when our imports of beans were raised by about 130 per cent., but those of

bean oil on the other hand were cut down to 55 per cent. The details of U.K. imports of soya beans for five years with the total for 1928 were as follows :—

Tons	1923	1924	1925	1926	1927
From Russia	63,700	Nil	Nil	Nil	Nil
,, China	20,946	102,972	150,983	43,464	71,269
,, Japan	28,414	8,496	9,999	1,776	10,058
,, Other foreign countries	Nil	6	15	43	1,794
Totals ..	113,060	111,474	160,997	45,283	83,121
Value ..£	1,271,993	1,413,763	2,041,004	534,207	929,735

Total for 1928 : 192,438 tons.

The item given above under 1923 of 63,700 tons from Russia is misleading, as this represents beans from Manchuria shipped through Russian ports chiefly Vladivostok. Details of U.K. imports of soya bean oil were as follows :—

Tons	1923	1924	1925	1926	1927
From Russia	2,086	1,399	1,098	765	628
,, Holland	617	1,880	1,140	1,116	105
,, China	1,656	7,432	8,313	19,510	25,457
,, Japan	18,701	18,668	18,561	26,832	26,419
,, U.S.A.	458	Nil	7	Nil	Nil
,, Other foreign countries	82	147	391	156	106
Totals ..	23,600	29,526	29,510	48,379	52,715
Value ..£	830,185	1,122,119	1,188,499	1,672,701	1,682,690

Total for 1928 : 24,667 tons.

Our imports of oil will probably continue to diminish owing to the considerably enlarged home crushings, as has also been the case on the Continent, particularly in Germany, as may be noticed from the statistics given below relating to the chief Continental importing countries :—

Imports in tons	Soya beans		
	1926	1927	1928
By Germany ..	364,210	567,023	834,373
,, Holland ..	18,912	9,937	18,226
,, Denmark ..	174,657	158,047	215,103
,, Sweden ..	63,265	68,379	88,000
,, Italy	Nil	58,658	66,422
,, Belgium ..	Nil	Nil	Nil
,, France ..	6	130	8,000
Total ..	621,050	862,174	1,230,144

Imports in tons	Soya-bean oil		
	1926	1927	1928
By Germany ..	19,685	11,290	1,100
,, Holland ..	49,764	75,473	41,390
,, Denmark ..	1,087	2,002	611
,, Sweden ..	4,477	5,767	3,571
,, Italy	Nil	Nil	23,234
,, Belgium ..	Nil	6,311	7,335
,, France ..	6,336	11,293	8,810
Total ..	81,349	112,136	86,051

The above returns of soya beans imported by the chief Continental countries with a total of nearly 1,250,000 tons for last year are therefore practically double the total shown for 1925. On the other hand, their imports of the oil-product, which increased in 1927 by about 31,000 tons to 112,136 tons, experienced a considerable contraction during last year, but between these two sets of figures relating to the Continental trades, it is clearly demonstrated that consumption there has substantially increased within the last three years.

United States Trade

As already mentioned, during the war-period when the trade in soya with this country and the Continent was practically cut off, exceedingly heavy quantities of bean-oil found their way to the United States through the Pacific Coast. Imports of soya oil into that country from the Far East, which amounted in 1916 to 64,914 tons, rose to 118,270 tons in 1917, and to as much as 149,993 tons in 1918. Returns since then quickly declined considerably, the total for 1928 being only 5,857 tons against 6,656 tons for the preceding year. The following figures are also of interest :—

Imports of soya-bean oil, soya-bean cake, and soya beans into the U.S.A.

Year	Soya-bean oil	Soya-bean cake	Soya beans
	lb.	lb.	lb.
1925 ..	19,492,900	27,801,936	3,811,897
1926 ..	30,711,687	42,869,187	3,727,628
1927 ..	14,914,792	53,950,898	4,204,268
1928* ..	10,862,718	79,155,776	3,415,885

* 9 months only.

Production of Soya in U.S.A.

The soya bean was introduced into the United States as early as 1804 and for several decades was regarded more as a botanical curiosity than as a plant of economic importance. With the introduction from Asiatic countries of new varieties into the United States, the bean assumed great importance and offers far-reaching possibilities. Soya beans were first used for the production of oil and meal in the United States in 1910, imported seed being used. American-grown seeds were first used in 1915 by cottonseed-oil mills in North Carolina, according to Dr. W. J. Morse, of the U.S. Department of Agriculture. The production in that country has increased rapidly in recent years. While no accurate figures are available previous to 1924, it is estimated that in 1917 only about 1,000,000 bushels were produced for seed. In 1924 production had increased to 5,190,000 bushels, the succeeding years being as follows : 1925, 5,131,000 bushels ; 1926, 6,063,000 bushels ; 1927, 7,925,000 bushels ; 1928 (estimated), 8,052,000 bushels. The increase has been most marked in the State of Illinois, production in that State having increased from 30,000 bushels in 1919 to 1,750,000 bushels in 1925, 2,405,000 bushels in 1927, and 2,650,000 bushels (estimated) for 1928. The following table shows the extent of this industry in the United States to-day :—

U.S. production, consumption, imports, and exports of soya-bean oil
(Thousands of lb.)

Year	Production*		Consumption†		Total‡	
	Crude	Refined	Crude	Refined	Imports†	Exports†
1925 ..	2,520	—	11,329	5,501	19,493	520
1926 ..	2,645	7,253	17,033	9,766	30,712	1,567
1927 ..	3,088	5,681	10,686	3,502	14,915	5,444

* Source : Bureau of the Census.
† Statistical Abstract of United States.
‡ Imports and exports include both crude and refined.

The Uses of Soya

Soya bean oil enters largely into the manufacture of edible products, including margarine in competition with ground nut oil, and another of its uses is as a soap-making material. It also enters into the composition of paints as a substitute for linseed and rape oils, and it is also used in the production of blown and oxidised oils for the linoleum and varnish industries. In the manufacture of candles and printing ink it is used to a limited extent. All researches on the soya bean and its products show their high value from a dietary standpoint and are attracting attention as holding great potentialities as a source of world food supply. Industrially the oil is fast becoming an oil of first-rate importance, having made vast strides during the last ten years. At Les Vallées, France, a large factory has been erected for the production of a wide assortment of food products from soya beans, such as milk, cheese, casein, oil, jellies, flour, bread, biscuits, cakes, and sauces. Similar factories are also springing up in the United States, where, as already indicated, it is believed that the soya bean will become one of the leading farm crops throughout a wide geographical area. Dr. Brooke, Public Health Officer at Singapore, considers the soya bean to be a perfect food and as an article of diet to be of a very high value. In China, soya bean sauce is an industry which occupies foremost rank in importance and value, considering its widespread character and the universal use of the output. The recent introduction of modern methods of preservation and bottling has helped to make it more popular.

New Companies
and Company News

P.C. means Private Company and R.O. Registered Office.

THE SCOTTISH TAR DISTILLERS, LTD. (P.C.).—Capital £350,000. Objects: To acquire, amalgamate and carry on the business of tar and ammonia distillers, etc. R.O.: Camelon, Falkirk.

VACSEAL CONTAINERS, LTD. (P.C.).—Capital £15,000. Objects: To acquire any invention relating to hermetic closures for cans, jars, bottles, boxes and containers of every description, and to adopt an agreement with Westminster Securities, etc. The subscribers are: H. S. Kennedy and S. H. E. Bunby. Solicitors: Kenneth Brown, Baker, Baker, Lennox House, Norfolk Street, Strand, W.C.2.

CLOVIMALT CATTLE FOOD CO., LTD. (P.C.).—Capital £100. Objects: To carry on the business of manufacturers, importers and exporters of, agents for and dealers in all kinds of general provisions, produce, fertilisers and manures, insecticides and fungicides, all kinds of feeding stuffs, condiments, foods, medicines, etc. The provisional directors are: S. F. Cuffe, C. H. Whittle, A. L. Gardiner. R.O.: 141 Moorgate, E.C.2.

EMCO DYESTUFFS, LTD. (P.C.).—Capital £100. Objects: To acquire the business of manufacturers of dyes and pigment colours now carried on at Air Street, Hull, by Major & Co., Ltd., and all or any of the assets or liabilities of the proprietors of that business in connection therewith. The subscribers are: J. L. Major, C. F. Wrigley and W. J. Darby. Solicitors: Coburn & Co., 6 Drapers Gardens, E.C.2.

C. NELSON & SON, LTD. (P.C.).—Capital £2,000. Objects: To carry on the business of paper bag manufacturers and printers, manufacturers and merchants of paper, cardboard and cellulose, and all classes of goods made or used therefrom, and in all materials used in the manufacture of paper, strawboards, boxes, envelopes and wrappings, etc., and to adopt an agreement with A. Nelson. R.O.: 73 Ridley Road, Dalston, E.8.

PHILIP WHIPMAN, LTD. (P.C.)—Capital £2,000. Objects: To acquire the business of a drug and chemical merchant and importer carried on by P. Whipman at St. Dunstan's House, Cross Lane and Bakers Row, Farringdon Street, E.C., and to adopt an agreement with the said vendor and S. V. Offord. The permanent managing directors are:—P. Whipman and S. V. Offord. R.O.: St. Dunstan's House, 8 Cross Lane, E.C.3.

J. H. M. LAND (LEICESTER), LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of chemists, druggists, wine and spirit merchants, dealers in fancy goods, opticians, etc. The first directors are J. H. M. Land, "Highbury," Stoneygate Road, Leicester, chemist (chairman and governing director), and Mrs. J. Land "Highbury," Stoneygate Road, Leicester (both permanent). R.O.: 2 Infirmary Square, Leicester.

BLAND PRODUCTS, LTD. (P.C.).—Capital £15,000. Objects: To adopt an agreement with A. Bland to carry on the production and sale of proprietary articles business carried on by him as "Bland's Products," and to carry on the business of manufacturers of and dealers in chemicals of all kinds, synthetic products, patent medicines, wooden, metal, fabric and fancy goods, moulding powders and fillers, boxes, containers and packing devices of all kinds. R.O.: 32 Palmer Street, Westminster, London, S.W.1.

INTERNATIONAL PROPRIETARIES, LTD., which was registered in Canada last year to take over control of J. C. Eno and the Thermogene Company, has issued a statement showing the results of the two subsidiary companies for 1928. The earnings of J. C. Eno, after allowing for depreciation, were £207,552, while those of the Thermogene Company were £21,380. This gives a total of £228,932, which at par of exchange amounts to $1,114,138. As the subsidiary companies were taken over during the middle of the year the results of the International Proprietaries for 1928 represent an operating period of only six months. During that period the balance of accrued earnings, after meeting dividend on the "A" stock, were held in the reserves of the controlled companies. It has been decided to bring these reserves into the books of the holding company. It is expected that the effect of various operating economies and rearrangement of territories will be reflected in the earnings for 1929. A new factory has just been opened in Buffalo which will effect savings on sales in the United States, which for the first three months of 1929 show an increase of 33 per cent. over the same period in 1928. Plans for the establishment of a factory in Australia are well in hand.

Bankruptcy Reports

Re Thomas Benjamin Davies, 52 Castle Street, Caerphilly, Glam., chemist and druggist. At the Pontypridd Bankruptcy Court on June 18 this debtor was examined in bankruptcy. Debtor showed a statement of affairs disclosing a deficiency of £468. He attributed his failure to trade depression, keen competition, and the loss of £400 by the purchase of the unexpired portion of the lease of a property at Caerphilly. The examination was adjourned, Mr. Davies being ordered to supply within ten days a cash and goods account.

Business Changes

MR. F. D. COGHLAN, chemist and druggist, is commencing business at 129 High Street, Cowes, I.W.

MR. C. G. KEBBELL, chemist and druggist, is opening a business at 1 Grays Corner, Eastern Avenue, Ilford.

THE PEPSODENT CO. have removed from Southwark Bridge Road, to India House, 8 India Street, London, E.C.3.

BOOTS, LTD., have purchased the business of Mr. R. Randall Roberts, chemist and druggist, 100 Foregate Street, Chester.

MESSRS. LARBALESTIER have opened a pharmacy at Charing Cross, St. Helier, under the management of Mr. W. Rice, M.P.S.

A. BERMAN & SONS, druggists' sundriesmen, 28 Chapel Street, Salford, are removing, as on June 26, to new premises at 76 Quay Street, Manchester.

JOHNSON & SONS (MANUFACTURING CHEMISTS), LTD., Renters Avenue, Hendon, London, N.W.4, inform us that their telephone number is now Hendon 8051 (3 lines).

Wills

MR. JOHN GEORGE FORSTER, of 19 Linnet Lane, Liverpool, and J. G. Forster & Co., chemical merchants, Water Street, Liverpool, who died on February 26 last, left £20,531 17s., with net personalty £20,208 18s.

MR. JOHN LAWRENCE SMITH, of 12 Tanyfoel, Bethesda, Carnarvon, and formerly of 49 Norwood Avenue, Southport, Lancs., pharmacist, who died on January 21 last, aged seventy-one, left £8,110 19s. 3d., of which £7,103 5s. 2d. is net personalty.

MR. JOHN CHILDS ROWELL, of 32, Taswell Road, Southsea, Hants, architect, at one time in business as a chemist and druggist in Duke Street, Reading, who died on February 11, aged 83 years, left estate of the gross value of £7,995 14s. 5d., with net personalty £7,888 12s. 6d.

MR. HERBERT HUDSON COOPER, of 43 Fernwood Avenue, Streatham, S.W., retired chemist and druggist, for over thirty years in business at 456 Oxford Street, W., as Gould & Co., who died on May 6 last, aged 81 years, left estate of the gross value of £6,964 14s. 1d., with net personalty £6,885 10s. 6d. Probate of his will has been granted to his widow, Mrs. Elen Matilda Cooper, of the same address, and his brother, Alfred Ernest Cooper, of 21 Elsham Road, Kensington.

Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C.4, June 26.

Owing to technicalities connected with the publication of this issue, our Trade Report closed on Wednesday morning. During the interval business has been quiet, with few changes. Annatto seed remains steady; balsams are neglected, and cod-liver oil is quiet, as is usual at this period. Bombay cannabis indica is 5s. per lb. dearer. Menthol is easy. Senega is rather firmer for July shipment. Vanilla at auction sold with fair competition at about the recent advance. The aromatic seed market is quiet, with the exception of coriander, which has considerably declined and is now below the cost of production. Fenugreek is still unobtainable on the spot, and Dutch caraway is slightly easier on the spot. Judging by the official statistics of production in Holland, the crop is about half of the normal annual consumption, so that higher shipment prices are ultimately looked for. Essential oils are quiet and business is small. Chinese star anise from the source is unobtainable and higher spot values have resulted. Sicilian lemon, patchouli and American peppermint for shipment are firmer. Gingergrass is easier and bergamot lower. Among pharmaceutical chemicals, business continues steady, with some products tending to advance. Lactic acid has been reduced by the Convention of makers. Barbitone and sodium diethylbarbiturate are tending upwards. Methyl sulphonal is lower. Among industrial chemicals, formaldehyde is cheaper, and caustic potash prices have been reduced by the Convention. Cresylic acid has been in better demand.

Higher	Firmer	Easier	Lower
Anise oil (star)	Castor oil (Eng.)	Acid oils	Bergamot oil
Cannabis indica (Bombay)	Cumin seed (Mor.)	Canary seed (Maz.)	Coconut oil
Palm oils	Lemon oil	Caraway seed (Dutch spot)	Coriander seed
	Patchouli oil	Gingergrass oil	Farina (Dutch f.o.b.)
	Peppermint oil (U.S.)	Rubber	Formaldehyde
	Vanilla (auction)	Turpentine	Lactic acid
			Methyl sulphonal
			Potash, caustic

Crude Drugs, etc.

Antimony is still slow of sale, buyers being very reserved, and spot lots of Chinese regulus are worth about £34. C.i.f. terms for shipment are no better than £31. Chinese crude on the spot is quite nominal at about £29 10s., and white oxide is obtainable at £25 10s., while English white oxide ranges upward of £53.

Annatto seed remains steady, and although there is a fair amount of inquiry for good seed on the spot, market is still without supplies With a firm order in hand, June-July shipment of new crop Jamaica and Madras could no doubt be obtainable at the parity of 52s. 6d. per cwt. c.i.f.

Balsams.—*Tolu* is neglected on the spot at 4s. 2d. to 4s. 3d. per lb. according to quantity. *Canada* is also quiet at 5s. to 5s. 3d. per lb. on the spot.

Calumba.—The recent arrivals of so-called new crop prove to be of inferior to ordinary quality mixed with wormy, such being available at from 30s. to 35s.; bright sorts are selling slowly at from 40s. to 45s. per cwt.

Cannabis indica.—Sales of genuine Bombay tops have been made at 45s. per lb.

Camphor (refined).—Japanese refined tablets are quiet at 2s. 4½d. per lb. on the spot, and for June-August shipment sellers quote 2s. 2d. c.i.f

Cinchona.—An auction of 1,344 packages Java pharmaceutical bark, weighing 45,812 kilos., will be held at Amsterdam on July 10.

Cascara sagrada.—New crop is offered at 55s. per cwt. c.i.f.; spot values are from 55s. to 57s. 6d. per cwt.

Cloves are quiet, with Zanzibar offering at 1s. 4½d. per lb. on the spot. To arrive, there are sellers of June-August shipment at 1s. 2d., August-October at 11½d., and October-December at 11d. per lb. c.i.f. The landings of Zanzibar in London during the week ending June 22 were 100 and the deliveries five, leaving a stock of 1,715, against 9,909 last year and 12,767 bales in 1927. To date, landings of Zanzibar have been 4,170, against 10,085 in 1928 and the deliveries 4,842, against 9,705 in 1928.

Cod-liver oil is steady although quiet, as is usual at this period. At the moment of writing the official figures of the fishing are not yet available. Prices from agents vary from about 103s. to 108s. per barrel c.i.f. for finest new (1929) non-freezing steam-refined Lofoten oil.

Hydrastis is quoted at 13s. 9d. per lb. c.i.f. and at 14s. on the spot.

Kino is still scarce, with good bright genuine East India realising from 1s. 4d. to 1s. 6d. per lb.

Lemon juice.—Sicilian (preserved with sulphur dioxide) is quoted at 2s. per gallon on the spot, ex wharf, in original packages.

Menthol is easy at 19s. 9d. per lb. on the spot for Kobayashi-Suzuki, and forward prices are from 18s. 6d. to 19s. c.i.f.

Mercury is unchanged. The demand is still strictly from hand-to-mouth, in spite of the continued small imports. Nearest quotations for spot lots are at £22 2s. 6d. to £22 5s. per bottle. The f.o.b. price from the Italian and Spanish mines remains at £21 15s. per bottle. The Eastern markets have been sending but few inquiries lately. In America the trade demand was reported on the light side, but the price has been retained at $122 per bottle, duty paid. Bonded stocks in the U.S.A. on April 30 were 4,385 bottles, thus showing an increase against the month previous. The domestic output for 1928 was reported at 16,838 bottles, against 11,276 bottles for 1927. It is interesting to note that the present output is the largest seen since 1919. Production, together with imports for last year, made the total supply available 32,421 bottles, against 35,926 bottles for 1927.

Pepper is steady, fair black Singapore closing at 1s. 4¾d. per lb. on the spot, and June-August shipment at 1s. 3¾d. c.i.f. Lampong is 1s. 4½d. to 1s. 4¾d. spot. Sales to arrive include May-July shipment at 1s. 4½d. to 1s. 4d., and August-October 1s. 3d. to 1s. 2⅞d. to 1s. 2½d. c.i.f. Tellicherry and Alleppy are both 1s. 4¾d. spot. White Muntok closes at 2s. 4½d.; sales to arrive include May-July shipment at 2s. 4d., and August-October at 2s. 0¼d. to 1s. 11⅞d to 2s. c.i.f.

Pimento is quiet at 1s. 2½d. per lb. To arrive, July-August shipment is 123s., and August-October 111s. per cwt. c.i.f.

Rubber is easier and about ¼d. lower on the week. The tone generally has been dull, as far as the speculative interest is concerned. The demand on the spot, however, continues, and manufacturers, both here and abroad, have again been taking fair quantities. Arrivals last week were on the small side and totalled 1,089 tons, whilst deliveries were 1,599 tons, showing a further decrease of 510 tons in the stocks. The London stock now stands at 30,617 tons, against 40,083 tons at the corresponding period last year. Quotations (Tuesday, 5 p.m.): No. 1 standard ribbed smoked sheet, spot and June, 10½d.; July-September, 10¾d.; October-December, 10⅞d. per lb.

Seeds.—The market is quiet with the exception of coriander seed, which has caused much excitement owing to the drop in price, mainly for July-August shipment. Anise.—Spanish is quoted at 67s. 6d. and Russian at 28s. 6d. per cwt. on the spot. Canary.—Mazagan remains about the same, with sellers at 23s. per cwt. spot. Saffi is quiet at 23s. per cwt. on the spot; for new crop, for July-August shipment, 21s. c.i.f. is quoted. Caraway.—Dutch on the spot is a little easier, with sellers at 42s. per cwt. Official statistics indicate that the Dutch acreage sown to caraway was 3,903 hectares, against 3,594 in the preceding year, the yield being about 19 bags to the hectare, against 24 in the previous year, and the official estimate of production is under 75,000 bags, or about half of the normal annual consumption of 150,000 bags. Cumin.—Maltese is unchanged at 55s. per cwt. on the spot, while Morocco is firmer both for spot and forward. Sellers are holding for 49s. per cwt. spot, and for July-August shipment business has been done at 47s. per cwt. c.i.f. Coriander.—For new crop, July-August shipment has been done as low as 9s. per cwt. c.i.f., but the market is now a little firmer, with sellers at 9s. 3d. c.i.f. for any position. The price now is below the cost of production. Fenugreek.—There is none to be had on the spot. The price quoted for new crop, July-August shipment, is 15s. 3d. c.i.f. Linseed is still quiet, with sellers at 24s. per cwt. on the spot, and for new crop 13s. 6d. c.i.f. is

now the price. FENNEL remains at 68s. per cwt. spot, and for shipment business has been done at 60s. c.i.f. MUSTARD is unchanged at from 27s. to 31s. per cwt., according to quality.

SENEGA.—The spot price is unchanged at from 5s. 3d. to 5s. 4d. per lb., and for July shipment from origin 4s. 4d. per lb. c.i.f. is quoted, and bids of 4s. 3d. have been refused; this is slightly firmer than our previous quotation.

SHELLAC is quiet but firm, usual standard TN orange quality offering at 197s. 6d. per cwt.; fine orange 210s. to 300s., pure button 235s., and AC eakey 205s. To arrive, sales of TN for June-July shipment have been made at 185s. c.i.f. Sales for delivery include TN for August at 194s. to 193s. to 197s. 6d., October 197s. 6d. to 198s., and December at 199s. to 200s.

VANILLA.—At auction on June 20 84 tins more or less out of condition offered and 60 sold with fair competition at about the recent advance. Of Seychelles, 27 tins offered and sold, comprising crystallised seconds 6½ to 7½ in. at 7s.; 4½ to 6½ in. at 6s. to 6s. 6d.; dry foxy solit to crystallised thirds 5s. 6d. to 6s. 3d. Of Bourbon, 32 tins offered and sold, comprising firsts crystallised stale 6 to 6½ in. 7s. 9d. to 8s.; 5½ to 6 in., 7s. 3d. to 7s. 6d.; 5 to 5½ in. 6s. 9d. to 7s.; 4½ to 5½ in. 6s. 6d.; seconds, 6½ to 7 in., 7s. 9d; 4½ in., 6s.; seconds, split 6 to 6½ in. 6s. to 6s. 6d. per lb.

Essential Oils

BUSINESS has been dull and orders small, so that there is a lack of interest. Star anise have advanced further, and the shortage of leads is marked. Sicilian lemon, patchouli and American peppermint to come forward are firmer. Gingergrass is easier and bergamot lower. Geraniums are maintained at last week's higher rates.

ANISE (STAR).—The position described in our last week's report has resulted in a highly excited market, and it is now impossible to find offers for shipment. Cabled offers from this side have met with no response. In the circumstances, with spot supplies of leads extremely short, the price for leads has been advanced to 3s. per lb., the other packages being proportionately firmer. The situation is most unusual at this season of the year, when consumption is at its smallest.

BERGAMOT is extremely weak and spot values have again collapsed to the level of 16s. per lb. for genuine 37-38 per cent. l.a. Shipment quotations are equally dull at 15s. 6d. to 15s. 9d. per lb. c.i.f., but prices should not go much lower. The present values represent a drop of about 2s. per lb. during the month of June and something like 4s. per lb. from the quotations given three months ago. A year ago the value was 24s. per lb. on the spot.

CASSIA is dull and neglected at 4s. 10d. per lb. for 80-85 per cent. c.a., guaranteed free from alcohol. The shipment value is 4s. 2d. c.i.f. on a London analysis.

GERANIUM continues firm. Bourbon has been sold on the spot at 20s. per lb., with the forward quotation at 19s. 9d. c.i.f. Algerian is extremely short, probably due to supplies being withdrawn from the market, and what spot offers there are mention 21s. to 22s. per lb. as the price.

GINGERGRASS is slightly easier on the spot at 8s. 9d. per lb., with shipment quoted 8s. c.i.f.

LAVENDER.—French oil, testing 38-40 per cent., is neglected at 15s. per lb. on the spot.

LEMON.—Sicilian is inclined firmer, both for shipment and on the spot. Quotations range from 15s. 9d. to 16s. 3d. per lb. on spot and 15s. 6d. to 16s. c.i.f. for genuine hand-pressed.

LEMONGRASS continues dull and neglected at 2s. 9d. per lb. on the spot and 2s. 7½d. c.i.f.

MANDARIN is quoted at 26s. per lb. on the spot.

ORANGE.—Sicilian is in poor demand, with values barely maintained at 17s. to 17s. 3d. per lb. on the spot and 16s. 9d. to 17s. c.i.f.

PATCHOULI.—Singapore quality is inclined firmer at 19s. per lb. on the spot. A cable this week from the source gave 20s. 6d. per lb. c.i.f. for Seychelles, which is a much dearer quotation.

PEPPERMINT.—American natural tin oil is inclined firmer for shipment at 12s. 3d. to 12s. 8d. per lb. c.i.f., while spot values are unchanged at 12s. 6d. to 12s. 9d. per lb., according to brand. H.G.H. is quoted 17s. 6d. per lb. on the spot and 17s. c.i.f. Japanese dementholised peppermint is neglected at last week's rates. Kobayashi-Suzuki on the spot is available at 6s. 4½d. per lb., with July-August shipment at 6s. c.i.f. and September quoted 6s. 1½d. per lb. c.i.f.

SASSAFRAS.—Natural American is firm, to arrive at 3s. 10d. per lb. e.i.f. and 4s. 3d. is the spot price.

WORMSEED (CHENOPODIUM) is unchanged, but in better demand at 7s. 9d. per lb. e.i.f. and 9s. on the spot.

Pharmaceutical Chemicals, etc.

A STEADY TONE continues in most directions with some products tending to advance. Prices for lactic acid have been reduced. Vanillin is being cut. Barbitone and sodium diethylbarbiturate are tending upwards. Business has been rather quieter, due to the approach of the half-yearly stocktaking.

ACETANILIDE continues steady on a quiet market; B.P. crystals and powder, 1s. 5d. to 1s. 6d. per lb., as to quantity.

AMIDOPYRIN is fully maintained at 8s. 6d. to 8s. 9d. per lb. on spot, with a tendency to move up.

BARBITONE.—The position here continues unusual. It seems very difficult to get offers from the Continent, and the few obtained work out at fully 7s. spot. The spot offer remains firm at about 6s. 3d. and upwards.

BENZALDEHYDE is steady on a slow market; quantities, 1s. 10d.; small lots up to 2s. per lb.

BENZOIC ACID is a bright item; quantities, ex works, 2s. 1d.; spot parcels, 2s. 2d. to 2s. 3d. per lb.

BROMIDES.—A fair business is being done, but competition continues keen; prices show no alteration on the week; dealers; ammonium, 1s. 10½d.; potassium, B.P., crystals, 1s. 7d.; granular, 1s. 7d.; sodium, B.P., 1s. 9¼d. to 1s. 10d. per lb., for quantities in cases. British makers' list prices are unchanged; ammonium, 1s. 11½d.; potassium, B.P. crystals, 1s. 8¼d.; granular, 1s. 7¾d.; sodium, B.P., 1s. 10½d. per lb. in cwt. lots.

CALCIUM LACTATE is held at last week's slightly higher rates; quantities from 1s. 2¼d.; smaller parcels up to 1s. 3½d. per lb.

CHLORAL HYDRATE is steady but quiet; duty paid crystals, 3s. 1d. to 3s. 3d. per lb., as to quantity.

CITRIC ACID (B.P. CRYSTALS) is unchanged, and business has been rather unimportant; spot, 2s. 1½d. to 2s. 2d. per lb., less 5 per cent., for foreign; some offers may be a shade less for quantities.

CREAM OF TARTAR continues steady and a fair business is being done; spot, 99/100 per cent. foreign material, 96s. to 97s. 6d. per cwt., less 2½ per cent.

EPSOM SALT is steady but slow: commercial quality, in single bags, £4 5s. per ton, ex store; B.P. about £2 more.

GUAIACOL CARBONATE continues firm on spot pending an expected advance; spot is offered from 5s. 3d. to 5s. 6d per lb.

HYDROQUINONE is steady and business has been fair: quoted from 3s 8d. for five-cwt. lots up to 3s. 11d. for 14-lb. parcels.

LACTIC ACID.—The Convention prices for B.P. have been revised and show a reduction. Five-ton lots, 1s. 6d.; one-tons, 1s. 6½d. ten-cwt., 1s. 7½d.; two-cwt., 1s. 8½d.; one-cwt. or less, 1s. 10½d. per lb., in carboys.

METHYL SALICYLATE has received a good inquiry; prices are unchanged at 1s. 6d. to 1s. 8d. per lb., with occasional offers at less.

METHYL SULPHONAL, as reported last week, shows a big reduction on the recently advanced rates; spot is freely offered now at 11s. 6d. to 12s. 6d. per lb., for quantities of one or two cwt.

PARAFORMALDEHYDE remains quiet and unchanged; 100 per cent. powder, in kegs, 1s. 8d.; smaller lots, 1s. 9d. per lb.

PARALDEHYDE is very quiet; quoted from 1s. 1d. to 1s. 4d. per lb., as to quantity and packing.

PHENACETIN.—There is still a distinct tendency for this market to advance; spot is firm at 2s. 10d. for one-cwt. lots of crystals, powder, one penny more.

PHENAZONE is also firm on spot with the market likely to harden; spot, 4s. to 4s. 6d. per lb., as to quantity.

PHENOLPHTHALEIN is very steady and selling at Convention prices of 5s. 11d. to 6s. 1½d. per lb., as to quantity.

POTASSIUM PERMANGANATE (B.P.) remains slow of sale on a steady market; quantities, from 6d.; smaller lots, 6½d per lb.

POTASSIUM SULPHOGUAIACOLATE is firm, and the market is advancing; spot is at about 4s. 3d. per lb. and upwards.

SALICYLIC ACID (B.P.) is steady at home makers' prices of 1s 5d. to 1s. 7d. per lb., as to quantity.

SODIUM DIETHYLBARBITURATE is firm, and spot prices are likely to advance from present rates of 7s. 9d. to 8s. per lb.

SODIUM SALICYLATE (B.P.).—Home makers' prices continue unchanged; powder, 2s. 2d. for ten-cwt. lots up to 2s. 4d. for small parcels. Dealers' quote crystals, 2s. 6½d.; powder, 2s. 4½d. per lb., for cwt. lots.

SULPHONAL is steady but quieter; spot, 10s. to 10s. 3d. per lb.

TANNIC ACID.—B.P. *levis* is slow of sale; quantities, 2s. 10d.; smaller lots, up to 3s. per lb.

TARTARIC ACID (B.P. crystals). — A moderate business is reported with the market steady; foreign, on spot, 1s. 4d. to 1s. 4½d. per lb., less 5 per cent.

THYMOL is quiet; synthetic fine white, 9s. 1d. to 9s. 3d.; ex ajowan seed, 11s. 3d. per lb.

VANILLIN is being badly cut so far as offers of ex guaiacol is concerned, the quoted price of about 14s. 6d. per lb. is being shaded for good sized quantities; ex clove oil is about 17s. per lb.

Industrial Chemicals, etc.

London, June 26.

FORMALDEHYDE is easier, with the market still unsteady and very competitive; caustic potash prices have been reduced by the Convention. Other items are fairly steady, but business has been generally quieter. ACETIC ACID is unchanged on a steady and fairly busy market: 80 per cent. technical, £36 15s.; 80 per cent. pure, £37 per ton, in barrels; glacial, pharmaceutical, 99 to 100 per cent., £66, in glass demijohns; glacial, in barrels, £56 per ton ex store. ACETONE is well held at former rates, with the market active: B.G.S., £76 to £85 per ton, in drums, ex store. ARSENIC remains quiet with the price of Cornish white powdered about £16 to £16 5s. per ton, f.o.r. mines, for 5-10 tons. FORMALDEHYDE is easier on a rather weak market owing to competition: 40 per cent by volume, £35 to £35 5s. per ton, in casks, ex store. FORMIC ACID continues dull and prices for 85 per cent., in carboys, are unsteady at about £44 10s. per ton ex store. ISOPROPYL ALCOHOL is receiving fair attention: prices for good quality material, about 11s. to 12s. per gallon, in drums, carriage paid. OXALIC ACID continues in moderate demand, with the market steady: quantities, from £30 per ton, ex wharf; ex store, 32s. per cwt. POTASH PRODUCTS.—The only change of importance is a reduction in prices for caustic. Business remains rather quiet generally: caustic, 88 to 92 per cent. solid, £31 15s. to £35 15s. per ton, in drums, ex store; c.i.f., 30s. per ton less in all cases; carbonate, 90 to 92 per cent., £24 7s. 6d. to £24 10s.; 96 to 98 per cent., £25 10s. per ton, in casks; chlorate is still slack: quantities, 2½d., ex wharf; spot parcels, from 3d.; permanganate, commercial, 5½d. for quantities, in two-cwt. drums; yellow prussiate, quantities, £63 10s. to £65 10s.; single casks, 7d.; small parcels, 7½d. per lb., ex store. SODIUM ACETATE is firm with supplies limited: spot, £21 10s. per ton, in casks, ex store. SODIUM HYPOSULPHITE is steady: dealers quote pea crystals, in one-cwt. kegs, £15 to £15 2s. 6d.; commercial, £9 10s., in casks, ex store. British makers' price for pure crystals to home consumers on contract, £15 per ton, carriage paid to buyer's station. SODIUM PRUSSIATE is steady but quiet: quantities, 4¾d. to 5d.; smaller parcels, 5¼d. to 5½d. per lb., ex store. ZINC OXIDE.—British makers' prices: B.P., £45; white seal, £42; red seal, £41 per ton, carriage paid. COAL-TAR PRODUCTS, ETC.—Pitch shows a further advance on quotation. Other items are about uncharged, with the market steady but rather quiet.

Fixed Oils, etc.

COTTON OILS have improved and are firm. Palm oils show a further slight upward movement with the market steady. Linseed oil is steady at about level figures on the week. Turpentine is easier. ACID OILS remain dull and easier: coconut and/or palm kernel, 31s.; groundnut, 31s.; soya, 27s. 6d. spot. CASTOR is steadier; pharmaceutical, 49s. 6d.; first pressings, 44s. 6d.; second pressings, 42s. 6d. per cwt. in barrels on the spot. COCONUT is quiet and slightly easier: deodorised, spot, 35s.; Ceylon, 32s. 6d. c.i.f.; Cochin, 41s. 6d. c.i.f. COTTON shows an improvement and closes firm: deodorised, 37s.; common edible, 35s.; soapmaking, 33s. 9d.: crude, 30s. 6d. spot. GROUNDNUT has been dull; deodorised, spot, 41s.; crude Oriental, 34s. 6d. c.i.f. PALM KERNEL remains dull; deodorised, 44s.; crude, 33s. spot. PALM is steadier and prices show a slight advance; business has been fair. Lagos, 32s. 6d.; softs, 31s. 9d.; medium, 31s. 9d.; hards, 34s. 6d.; bleached, 34s. 3d. spot. RAPE is quiet but steady; refined, 45s. 6d.; crude, 43s. 6d. spot. SOYA is steadier; deodorised, 37s.; crude, 32s. 6d. spot. LINSEED (RAW, NAKED).—The market, after losing ground early on, has recovered and closes generally steady. On spot, 29s 3d.; July, 28s. 4½d.; July-August, 28s. 3d.; September-December, 28s. 4½d.; January-April, 28s. 6d. Boiled oil, on spot, 33s. Hull, on spot, 29s. 7½d.; July-August, 29s; September-December, 28s. 9d. TURPENTINE (AMERICAN).—The market shows a slight depreciation on the week, and is dull. Total London stocks, 10,559 barrels. On spot, 44s. 3d.: June, 43s. 9d.; July-December, 42s. 3d. WOOD.—Hankow in barrels on spot is quiet at 72s. 6d. per cwt.

LUBRICATING MINERALS AND BURNING OILS, ETC.—Conditions in this market have remained quiet, but the general tone is steady, and there is no change to report. LUBRICATING OILS are firm on an active market; spot: pales, £13 7s. 6d. to £33 10s., reds, £11 10s. to £33; dark cylinders, £14 12s. 6d. to £39; filtered cylinders, £23 5s. to £42 as to quantity, per ton, less 2½ per cent.

New Zealand Honey

THE New Zealand "Herald," in the course of an interesting article on honey, states that the largest quantity of New Zealand honey graded at one time, about 240 tons (3,830 cases) is awaiting shipment to England in the bulk store of the New Zealand Co-operative Honey Producers' Association, Ltd. The whole of it is from the Auckland Province, mainly from the Waikato and Hauraki plains district, and is pasture honey, largely from white clover.

Italian Tartaric Acid

THE first annual report of the Appula, the principal Italian producer of tartaric acid since its reorganisation under the control of the Distillerie Italiana, has just been published. The net profits for 1928 were 3,646,900 lire, on which a dividend of 10 per cent. has been declared compared with *nil* in the previous year. The company benefited materially under the Italo-German agreement, which gives these countries practical control of the world market for tartaric acid. Other factors which contributed to a successful year were the formation of a centralised sales office, the Societá Anonima Italtartar, through which all the tartaric acid made in Italy is marketed, and the agreement with the Arenella, whereby the Arenella gave up the manufacture of tartaric acid and the Appula that of citric acid.

English Herb Crops

Stafford Allen & Sons, Ltd., write that the crops generally this year are backward and not too good.

ACONITE will be a very poor crop this season.

BELLADONNA.—The plantations have suffered very considerably from the severe frosts, and in some cases have had to be destroyed. The younger plants, however, are looking well, and these will save the situation, and we shall probably have a fair crop finally.

CHAMOMILES.—The crop has been severely damaged by the frosts, and will probably be only a fraction of last year's. English flowers will be very scarce.

DIGITALIS.—So far this looks very well. We have considerably increased our plantations and look forward to a good crop.

DILL is coming along quite nicely, but it is early to say much about this crop.

HENBANE.—The second-year plants have stood the winter well, much better than one might have expected. With the warmer weather and a certain amount of rain, the crop is looking very well. The picking of leaf is in full swing.

LAVENDER.—Here, again, the older plantations have suffered a good deal from the frost; the younger plants are looking well. The yield of oil depends on the weather during the last three or four weeks before reaping.

PANSY FLOWERS.—These will probably yield a normal crop.

PEPPERMINT.—This was rather late appearing again owing to the severe frosts, but we hope to get a fair crop in due course.

WILD LETTUCE.—This somewhat unimportant crop is looking well.

Trade Mark Applications

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1929, p. 333.

(From "The Trade Marks Journal," June 5, 1929.)

"UNODOL"; for a veterinary medicine for chills (2). By H. Tate, Southfield, Yeovil Road, Sparkford, Yeovil. B490,054.

"ZENIA"; for a medicinal preparation (3). By J. Hayes, 147 Camden Road, London, N.W.1. 499,445.

"URICEDIN" for medicines in crystal form for rheumatism, etc. (3). By J. E. Stroschein Chemische Fabrik G.m.b.H., Wienerstrasse 47, Berlin. B488,763.

"PATEL'S SUKHAMRIT" on label device including portrait of applicant and picture of man and lion standing on globe ("Patel's" disclaimed); for a medicine (3). By The Patel's Sukh-Amrit Agency, Main Street Plot No. 1, Block D, Kampala, Uganda Protectorate, and Station Road, Dharmaj, Bombay. 500,993. (Associated.)

Correspondence

Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

Representation and the N.H.I. Position

SIR,—With the rest of my fellow chemists I have been interested in the efforts of the Council and trade generally towards direct representation in Parliament, and regret that greater success did not result. There will now, however, be more time to mark, learn and digest some unpleasant facts and statistics—unpleasant however viewed. I wonder whether the Council are sufficiently alive to the fact that men conversant with pharmaceutical affairs have qualifications just as useful to those people we may assume to be our adversaries as to our own particular body. In my own view, anyone professionally versed in the law must be ruled out unless we can ensure exclusive use of his time and brains. Incidentally, and at the moment, I rather regret the statement that our secretary has qualified for the legal profession. We are reminded frequently of a notable occasion when we had in the House of Commons one of our own profession, or rather one with a full knowledge of our difficulties; but that we came out in any way the better for the turmoil and excitement of the times most chemists are inclined to doubt. Certainly the principle of "dispensing by chemists," with an especial eye to N.H.I., is set down as an asset—equally shared, by the way, with our opponents, who also got definite and authoritative recognition. Did we bargain for that, I wonder? In this same N.H.I. business there is some resemblance to old Government methods in regard to the G.P.O., when, finding a great deal of work to be done in hamlet, town and city, permission was given to many traders to add P.O. work to their own legitimate businesses—mainly at their own expense. Matters may be improved nowadays, but some years ago, when I was P.O. clerk *pro tem.*, I never heard of any considerable profit made out of it. Now there is a great mass of dispensing to be done as cheaply as possibly, seemingly. In the case of the P.O. department, we have at the worst to repay the cost of our errors, and are not otherwise misused. The chemist, on the contrary, is treated more or less as a criminal. Do we not hold a good strategic position? Any reasonably intelligent person can deal with the usual P.O. routine, but dispensers have to be qualified and trained. Why not make a peremptory demand for terms that will yield a definite profit? A quite modest stipulation would be for a further twopence on each script. At the same time, all disciplinary measures in respect of our craft might be entirely recast and considered.

Yours, etc.,

INTERESTED (24/6).

Settling in Business

SIR,—The second article on "Settling in Business," by "Fifty Odd" (*C. & D.*, June 15, p. 714), is as interesting as the first, and there are several points which it will pay a beginner to study and bear in mind. I am aware that there are many men who have started on borrowed capital and have been successful, but I am firmly of the opinion that if it can be managed without the aid of borrowing it is the wisest course, however small the start may be; a debt, whether disguised under the name of a mortgage or a loan, is always a weight round one's neck. There is one point which might be explained. In a balance-sheet the value of the fixtures is put down as an asset and a certain amount allowed yearly for depreciation; if the original cost was £500 and a 10-per-cent. depreciation knocked off yearly, after a lapse of ten years the value would be written down to about £200; would this be a fair price to pay when purchasing the business as a going concern? The question of a lock-up shop or one with a house attached is usually decided by whether one is a bachelor or married. I once refused the offer of a business which was a really good and sound concern, practically unopposed, solely because the house was old and small, and in consequence the original downstairs rooms and kitchen had all been taken in for business purposes, leaving only two rooms on the first floor suitable for accommodation. I do not believe that to-day goodwill amounts to much, as the public seldom stick to any one shop, but make their purchases wherever they may happen to be at the moment.—Yours faithfully,

PURCHASER (24/6).

Pharmacy Week Windows

SIR,—"Camera Lucida" (*C. & D.*, June 22, p. 767) says that the question frequently asked by chemists, when viewing the specimen windows at the Chemists' Exhibition for a Pharmacy Week display, was "What will it sell"? Looking at the windows from a retailer's point of view, I should reply, "Very little," though that is not entirely the idea underlying the displays. I think there was something to appeal to all classes of chemists and the displays were well arranged. No. 1, starting from the left when facing them, rather gave one the impression of a manufacturer's stall at a trade or Wembley exhibition, with its sample tubes of liquid medicines, etc., and for a retail window would require more popular descriptive matter. No. 2, entitled "the family medicine chest," had a showcard facsimile of a medicine cupboard, which at first glance I took to be a standard first aid cabinet; in reality the window is a display of the usual packed drugs, and should be suitable for most retail chemists. Although I understood that no proprietaries or own specialities were supposed to be included in this window, I suppose there would be no objection to price tickets on the bottles of sal volatile, castor oil, etc. No. 3 was intended for an agricultural neighbourhood. No. 4 was a materia medica display, and was interesting as such on account of the representative specimens of drugs, attractive to a chemist or anyone who was familiar with these things, but of doubtful interest to the general public. No. 5 was devoted to first aid materials and sick room appliances, more likely to attract the public eye to necessary articles, while No. 6 contained a balance, pill-machine, etc., fronted by the B.P., and the B.P.C.—again of doubtful attraction to the ordinary shopper. Of the six, Nos. 2 and 5 are most likely to appeal to the chemist who wishes to keep an eye on the selling possibilities as well, the only thing which strikes one being that the same articles are on sale to-day at all the stores and bazaars, so that they should be backed by cards with forceful reasons why these remedies and appliances should be purchased from the chemist, their rightful purveyor. Crêpe paper always seems out of place to me in a chemist's window; it has a cheap and tawdry appearance, especially if it begins to fade.

Yours truly,

FENESTRA (25/6).

In Lighter Vein

SIR,—The discoverer of "sulphate of oxide" in "The Morning Post" (*C. & D.*, June 8, p. 679) has been eclipsed by a lady writer in "The Daily News," June 8, who commences an article with a tale about a man who had been ordered by his doctor to take a course of "trinitrate" and added glycerin to the remedy on his own account, to the great horror of the physician, who informed him that he was filling himself up with a dangerous explosive. This tale is told probably as a joke; but the writer goes on to quote a letter from an old lady who has been taking a certain medicine for her nerves, presumably a proprietary medicine, has now been informed that it is nothing but sugar and water, and wants to know whether she should go on taking it or have it analysed. The lady journalist, who states that she learned to read prescriptions while studying first aid, replies that many of these medicines are excellent and do all that they profess to do, that it is not worth while to pay to have it analysed, but that there is in existence a publication called "Pharmaceutical Formulas" which might contain the formula required. One wonders whether the writer has ever seen the book chemists know so well.—Yours truly,

INFORMATUM (10/6).

Dispensing Notes and Difficulties

An Easton's Syrup Mixture

SIR,—Please let me know what interaction takes place when the following is dispensed :—

Tr. digit.	...	...	...	ɱxv.
Tr. nucis vom.	...	...	...	ɱx.
Sodii bromidi	...	...	...	gr. xv.
Sodii sulphatis	...	...	...	ʒss.
Tr. card. co.	...	...	...	ɱxx.
Syr. Eastoni	...	...	...	ʒj.
Aq.	...	...	ad	ʒss.

Yours truly,

BROMIDE (20/5).

[The precipitate which slowly separates out from this mixture consists of ferrous phosphate thrown out from the Easton's syrup by the tinctures. The presence of the sodium salts in this concentration assists the precipitation.]

Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for, and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

F. H. G. (13/58).—ANT PEST.—It is difficult to see how the ants can be prevented from touching the sugar, otherwise than by removing it to another part of the premises. The insects could then be trapped by means of sponges soaked in thin syrup, which are plunged into boiling water when covered with ants. Another method would be to use a poison bait, e.g., syrup containing a little arsenic. Strong-smelling substances, such as carbolic, paraffin and naphthalene, often cause ants to migrate, though there is some risk of the odour being communicated to food products.

H. W. (13/68).—WEEDS IN POND.—*See C. & D.*, June 22, p. 768.

H. S. (17/68).—HAIR CREAM.—The addition of a little oil to the tragacanth type of cream is presumably what you require. *See C. & D.*, May 25, p. 644 and 1928, I, 58.

Albion (22/58).—The acetous odour does not seem to be evolved so readily if the granulated acetylsalicylic acid is used. An effort to eliminate the odour should be made by triturating the caffeine and aspirin together before adding the other ingredients.

E. J. (8/68).—Many remedies have been suggested for the treatment of brittle nails and hair, notably calcium lactate and citrate, but none has proved satisfactory.

Shell (19/68).—Owing to the possibility of altering the wearer's correction and the risk of breakage it would be wiser to allow an optician to make the alterations to the spectacle frames.

G. C. (22/68).—The North of England Medical Formulary contains the following formula for Elixir Luminal Sodium :—

Luminal sodium	...	...	...	gr. ij.
Elixir simplex	...	...	...	ʒj.

R. S. (7/5).—ASTHMA MIXTURE.—This is a dark brown mixture having the odour and flavour of liquorice and a saline taste. It contains about 5.6 per cent. of ammonium bromide, or 25 grains to the ounce. The mixture is alkaline, due, no doubt, to a little ammonium carbonate; there is no inorganic matter. There is some slight evidence of drugs of the lobelia and stramonium type, but these are not amenable to ordinary tests.

J. W. M. (3/6).—DISINFECTANT AND AIR PURIFIER.—This is a clear, sherry-coloured liquid of oily consistency smelling strongly and agreeably of pine, suggestive of preparations of the Sanitas type. The preparation is, however, a saponaceous emulsion of the oil, which froths freely on dilution with water. The correspondent intimates that it "belongs to the cresol group." Appropriate tests failed to confirm this.

Legal Queries

Legal (24/68).—Arsenical fly-papers come within Part I of the Poisons Schedule.

L. I. S. (27/5).—The position in regard to extract and tincture of Indian hemp under the new Dangerous Drugs Regulations was discussed editorially in our issue of January 5, 1929, p. 18. When extract or tincture of Indian hemp is present in a preparation in conjunction with other ingredients it is outside the Dangerous Drugs Acts. It is only when either of these two articles is prescribed alone that it comes within the provisions of the Acts.

J. F. (22/68).—The Regulations for the keeping of poisons made under Section I of the Pharmacy Act, 1868, which apply to all scheduled poisons kept by chemists are given in the *C. & D. Diary*, 1929, p. 301. Section 6 (2) of the Dangerous Drugs (Consolidation) Regulations, 1928, requires that "every drug or preparation in the actual custody of a person authorised by virtue of this Regulation shall be kept in a locked receptacle which can be opened only by him or by some assistant of his being a pharmacist."

Subscribers' Symposium

For interchange of opinion among "C. & D." readers and brief notes on business and practical topics

Letters Waiting

Mr. Martin Rushton, of Hobart, Tasmania, is requested to communicate his address, as several letters for him have reached the *C. & D.* Offices.

Stupefying Rats

A customer desires something that will either kill rats on the spot, or stupefy them so that he can approach and finish them off. He does not want the rats to crawl away and die under floorboards; on the other hand, he wants to say definitely, "I have destroyed so many rats."—*J. H. L.* (15/6).

Almost Priceless

A well-known London manufacturing house (24/6) has forwarded us two loosely-corked vials, each containing about ½ oz. of a coarse, aromatic-smelling powder which, it appears, has been sent to our correspondents from a silk merchant in India. The merchant's letter accompanying the samples, which is in our possession, directs that the powder, a "cure" for hysteria, is to be divided in thirty equal parts. We quote from the latter part of this effusion :—"But this medicine makes the patient too hungry. Whenever he feels hungry he must eat. If he neglects his food there is very little hope of his being cured. Under no circumstances should he remain hungry or kill his appetite. The price of each bottle is £ 10/-, and after giving it a fair trial if you are convinced of its effectivness please send me £ 20/-, the price of the two bottles, and recommend it to others, and favour me with a further order. But if you find it a quack preparation please do not take the trouble of sending any money." We understand that there was "nothing doing," although it is claimed that one bottle of the medicine cures "completely and for ever."

Retrospect of Fifty Years Ago

Reprinted from
The "Chemist and Druggist," June 14, 1879

Collodion in Sea-Sickness

Dr. Laederich, a French physician, highly recommends the treatment of sea-sickness with collodion. This had been the means of warding it off from many who were peculiarly predisposed to suffer from it, and had suffered much before. The collodion is applied with a brush in three successive layers on the epigastric region (over the stomach) and the neighbouring parts. It acts in such cases in the same way as in those of peritonitis where it is a powerful anti-emetic.

THE CHEMIST AND DRUGGIST

COMMERCIAL COMPENDIUM

deals with the trade side of pharmacy

[Commenced *C. & D.*, July 5, 1924]

Resin.—Common resin, or colophony, consists of the fixed residue obtained on the distillation of turpentine or oleo-resin obtained from one or other species of the pine, chiefly from *Pinus australis, P. laricio, P. pinaster* and *P. taeda.* The lightest-coloured resin is that obtained from trees tapped for the first time, and such resin constitutes about 80 per cent. of the oleo resin. The proportion of resin in crude turpentine gradually increases on subsequent tappings and also darkens in colour. The chief commercial resins are the French and American, the former being called "galipot." The American variety is graded by letters. For instance, "W.W." indicates water-white resin and "A" denotes an almost black resin. It is employed largely in soap manufacture, in the varnish industry, to a certain extent in pharmacy, especially by veterinary surgeons, and the soluble salts are used in the paper industry for sizing paper. Large quantities of resin are also used in the production of resin oil. Resin mainly consists of a mixture of free acids together with small quantities of isomeric or polymeric inert substances and traces of mineral constituents. The unsaponifiable substances are probably hydrocarbons produced by the action of heat during manufacture. The chemistry of colophony has produced various conflicting results from a number of investigations. Maly states that the chief constituent of colophony is abietic anhydride, while Mach obtained abietic acid from colophony by a preliminary treatment with 70 per cent. alcohol, and crystallisation of the insoluble portion with 90 per cent. alcohol. After making various experiments he assigned the formula $C_{19}H_{28}O_2$ to the acid, which formula was accepted by Tschirch and Studer, although their analyses do not agree with the suggested formula. Fahrion found American resin to consist mainly of an acid to which he gives the name "sylvic acid." This exists in colophony in an amorphous form. A good quality colophony is of pale yellow colour, soft, fragile, and almost transparent. On heating, a distinct terebinthinate odour is noticeable. It has the following typical characters :—Specific gravity, 1.0450 to 1.085; acid value, 150 to 175; ester value, 7 to 20; iodine value, 118 to 128; unsaponifiable matter, 4 to 9 per cent. Colophony, being the cheapest resin of commerce, is never adulterated, but it is a favourite adulterant of more expensive resins, such as shellac, dragon's blood, damar, storax, benzoin, etc. No definite limit can be placed on the melting-point of colophony. It usually softens between 70° and 80°, becomes semi-fluid in boiling water and melts completely at a somewhat higher temperature. It should not exceed 135°. When heated in the air, colophony ignites and burns with a yellow and very smoky flame. When unmixed with interfering substances, colophony is readily recognised by its physical characters. The so-called "driers" of the paint trade are made by melting colophony with the oxide of the metal, usually lead or manganese, or by the addition of a solution of a suitable metallic salt to an aqueous solution of the colophony in the form of its sodium salt. These resinate driers always contain a large excess of resin, otherwise their action would be far too powerful for any practical general use. The resinate driers must be quite soluble in linseed oil, and any amount of insoluble metallic oxide is quite useless. When resin is subjected to dry distillation it yields resin spirit and resin oil. Resin spirit is a light, oily liquid boiling between 80° and 250°. Between 290° and 310° resin oil starts to distil over. The residue consists of valuable pitch or of cokey matter. The yield of resin oil is usually about 85 per cent., the remaining 15 per cent. including from 2.5 to 5 per cent. of resin spirit.

Resin Oil consists of the heavier and less volatile portion of the product resulting from the dry distillation of colophony (common resin). In its commercial form, it is a viscid liquid varying from water-white to a dark brown. The crude oil can be purified by cleansing with a small percentage of sulphuric acid followed by treatment with lime-water and then redistillation, with or without steam. A superior article can be prepared by redistilling over solid sodium hydroxide with a current of superheated steam. The refined product is practically odourless at normal temperatures, but, when highly heated, it gives off fumes neutral or nearly neutral in reaction to wet litmus-paper, with a marked odour of resin. On heating resin oil it is not usual to obtain any distillate below 300°. It has a peculiar taste, and leaves a nauseous after-taste on the palate. Nitric acid will sometimes fail to produce any instant action on resin oil, but if the mixture be warmed, a violent reaction may occur suddenly, and, on cooling, the oil is converted into a somewhat brittle resin. The composition of resin oil is not thoroughly understood. It frequently contains a fair proportion of abietic acid or, perhaps, abietic anhydride, but the major part consists of a mixture of high boiling point hydrocarbons. The following table of samples of resin examined by Allen shows the variable characters of the commercial article:—

Description	S.g.	Resin acids	Hydro-carb'ns	Bromine absorption, dry		Bromine absorption, wet	
				Total	As HBr	Total	As HBr
Very pale refined oil	0.990	—	96.9	110.0	11.8	—	—
Pale oil, special	0.982	6.4	93.9	105.1	4.8	—	—
Pale sweet oil ..	0.979	1.1	—	63.0	4.7	56.5	13.6
Ordinary oil ..	0.985	17.8	81.2	138.5	9.7	—	—
Common dark oil	1.099	11.1	88.6	66.6	7.6	—	—
Crude oil	0.990	—	—	60.8	3.9	47.0	11.2
Pine oil..	0.986	—	—	73.9	5.1	51.9	8.9
Ink oil ..	1.006	—	—	—	—	—	—

It is noticeable that the bromine absorptions are very variable, and that there is a wide divergence between the wet and dry results. Resin oil has a wide use as a lubricant, especially for wagon wheels and machinery. It is used in the condition of resin grease, and in admixture with olive, rape and various oils. It is frequently added to the poorer quality boiled linseed oils, and, in mixture with rape oil, is used to adulterate olive oil. Castor oil has been frequently and regularly adulterated with resin oil. Resin oil is also used mixed with linseed oil for the manufacture of printers' inks. Though this oil is more usually an adulterant than it is adulterated it is sometimes found adulterated with mineral oil. Resin grease is made by stirring together resin oil and slaked lime.

Resins, Natural.—The resins consist of a number of substances of variable and complex chemical composition, all the important ones occurring naturally, though certain of them may be prepared synthetically. Generally speaking, all the natural resins occur in the form of exudations from plants, either as the result of natural or of diseased conditions. Frequently such exudations are induced and controlled by artificial mechnical devices. Sometimes the resins occur in a state of admixture with gummy matter or essential oils, and in such a case the resinous product is styled "gum-resin," or "oleo-resin" as the case may be. The resins are rarely, if ever, pure chemical compounds, even when separated from the extraneous matter with which they are exuded. It was at one time believed that the resins were oxidation products of terpenes, but

The C.&D. Commercial Compendium

it has now been shown that this is by no means universally the case. The present system of examination of the resins is due to the efforts of A. Tschirch, who classifies the proximate constituents of resins under three heads: (1) Resin-esters and their decomposition products; (2) resinolic or resin acids; and (3) resenes, which are substances mainly of unknown composition. Frequently one or other of these three classes preponderates, and in such a case the product is grouped as an ester-resin, an acid-resin or a resene-resin. Tschirch's method of examining resinous bodies is as follows: The sample is dissolved in ether and the resulting solution is agitated successively with: (1) a one per cent. solution of ammonium carbonate; (2) a one per cent. solution of sodium carbonate; and (3) 0.1 per cent. and one per cent. solutions of potassium hydroxide. By these solutions the resin-acids are dissolved, and they can then be precipitated by a dilute mineral acid. Among the ester-resins Tschirch includes: (1) the benzo-resins—gum benzoin, Peru and tolu balsams, storax, dragon's blood, etc.; and (2) the umbelliferous gum-resins, ammoniacum, galbanum, sagapenum, umbelliferous opopanax, etc.—The terpene-resins, consisting in the main of resin-acids, include the coniferous resins, copaiba balsam, etc.—The resene-resins include (1) the burseraceous oleo-resins, myrrh, olibanum, Mecca balsam, bdellium, etc., and (2) the dipterocarpus products, resin, damar and Manila copal.—On saponification most of the resin-esters yield aromatic acids, and consequently such resins come under the heading of aromatic balsams. The resin alcohols, the alkyl radicals of the resin-esters, have been isolated by Tschirch, who divides them into two groups—resinols and resinotannols. The resinols are colourless and give no tannin reaction with iron salts, whilst the resinotannols are coloured and give a reaction. The resinolic acids are free acids of resins of complex constitution and high molecular weight. Usually they contain one or more hydroxyl groups as well as carboxyl residues. Relations have been suggested between some of the resin-acids by means of their reputed formulas, but in most cases these must not be taken as established. Resin-acids have not been found with more than one hydroxyl-group. The resenes are practically unclassifiable. They appear to be oxygenated compounds, but are not acted on by alkalis and have no characteristic chemical properties. They do not appear to be either alcohols, esters, acids, ketones or aldehydes. They are insoluble in alkali hydroxides, nor are they acted on thereby. Generally speaking, as a class the resins are solid, in some degree transparent, brittle substances, and in some cases crystallisable. Resins fuse readily, but they are non-volatile, and in heating in a closed vessel they decompose. When heated in the air, they inflame readily and burn with a smoky flame. They are insoluble in water, but are largely soluble in alcohol. The solutions of resins in alkalis differ from ordinary soap solutions, in that they cannot be "salted out" except by the addition of very large quantities of common salt. Many resins have a large commerical usage. Some are used to a very great extent in varnish-making and in soap-making. They are also used for making sealing-wax, for hat-stiffening, and to a certain degree in medicine. In examining a resin, water and certain general impurities are removed by dissolution in oil of turpentine or other suitable solvent. The residue obtained on filtration frequently consists of woody fibre. Resins can be separated from the neutral fixed oils by treatment with alcohol of about 0.85 specific gravity. Acid resins can be separated from the neutral fats by boiling with a strong solution of sodium bicarbonate or borax. Resins may be separated from essential oils and camphors by distillation in a current of steam, and then, if required, by immersion of the flask in a calcium chloride bath in a steam current. Essential oils and camphors may also be separated by rubbing down the resinous substance to a fine powder in admixture with a predetermined quantity of sand, and then macerating in petroleum spirit. The mixture of ethereal oil and resin left on the evaporation of the petroleum spirit at normal temperature often yields more or less characteristic colour-reactions with the reagents for essential oils. Useful data are also to be obtained by treating resins with chloroform, ether, or a saturated aqueous solution of sodium carbonate. The resins being very complex in constitution, their analysis is of extreme difficulty, and no general method can be adopted; suitable methods must be selected to fit particular cases. The acid value may be determined in one of the following ways:—(1) Direct titration in alcoholic solution with alcoholic potassium hydroxide. (2) Dieterich's indirect method (for ester-free resins). The resin is left standing for twenty-four hours with an excess of alkali, and is then titrated back with standard sulphuric acid. (3) Marcusson and Winterfield's method. The resin is boiled with a solvent containing equal parts of absolute alcohol and benzene. The saponification value may be arrived at in the usual way. The following table gives average figures for a number of resins:—

	Acid Number	Ester Number	Iodine Value
RESINS			
Amber	15	71	62.1
Animi	18 to 28	48 to 60	128 to 138
Colophony	146 to 176	7 to 25	115
Copal	30 to 148	25 to 90	35 to 45
Damar	33	14 to 20	63 to 140
Dragon's blood	11	140	99
Elemi	21	3 to 20	72 to 87
Guaiacum	25 to 45	—	—
Jalap	13	121	—
Mastich	60	25	160
Sandarac	145 to 155	1 to 12	134
OLEO-RESINS			
Canada balsam	80 to 85	4 to 9	—
Copaiba balsam	50	20	—
Gurjun balsam	6 to 20	11	—
Mecca balsam	40 to 50	101	—
Common turpentine	110 to 145	3 to 60	—
Chian turpentine	48 to 54	20	—
Venice turpentine	70	33	145
Burgundy pitch	170	—	—
GUM-RESINS			
Ammoniacum	60	125	—
Asafetida	60 to 137	30 to 100	—
Bdellium	11 to 80	80 to 180	—
Euphorbium	11 to 35	50 to 96	—
Galbanum	5 to 70	55 to 180	—
Gamboge	80 to 100	57 to 67	116
Myrrh	64 to 72	95 to 150	—
Olibanum	40 to 70	7 to 70	—

Resorcin. — Resorcin is *meta* - dihydroxybenzene, $C_6H_4(OH)_2$, and may be prepared by fusing sodium hydroxide with sodium benzene-*m*-disulphonate, cooling, dissolving in boiling water, adding hydrochloric acid, and boiling until all sulphur dioxide is expelled. The filtered liquid is extracted with ether, and the ether recovered. The product is purified by sublimation and recrystallisation. It forms white needle-shaped or prismatic crystals melting at 110°-111°. It becomes of a reddish colour on exposure to air and light, and should be kept in amber-coloured bottles. In the presence of alkalis in aqueous solutions it rapidly darkens and acquires a strong green fluorescence. A weak solution is coloured blue-violet on addition of ferric chloride, the colour changing to brownish yellow on the addition of ammonia (distinctive from catechol and quinol). The most characteristic test for resorcin is to heat it to about 112°, with an equal weight of phthalic anhydride, dissolve the melt in dilute sulphuric acid and pour the liquid into dilute ammonia, when a yellow-green fluorescence is obtained. It is given in small doses as an antipyretic, but not to any large extent; it is also used as a gargle (3 per cent.) and as a spray in diphtheria and other disease. It is used to a considerable extent in ointments for psoriasis and eczema. It is official in the British Pharmacopœia.

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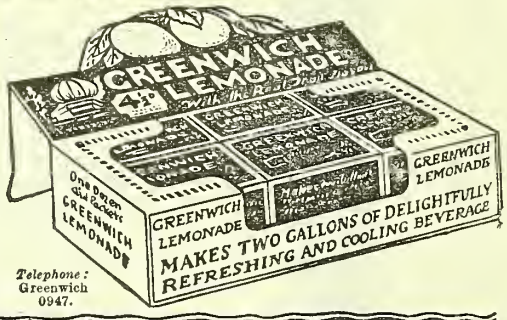
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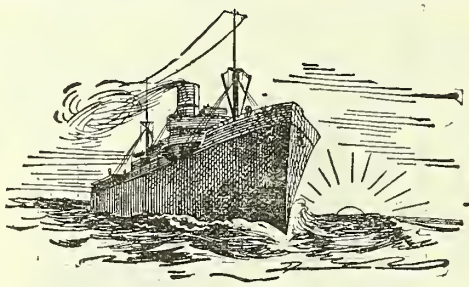
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1/3, 3/-, 5/-, 12-/, and £1 2s. per box, post free.
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Acts like magic—on your Sales!

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TERMS:
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33⅓%	10	0
	£1 0	0
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		£1 9	6
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		19	8
BONUS 5%			11
		18	9
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THE MANUFACTURER OR OWNER of an article which is on the P.A.T.A. List is assured of the goodwill of the distributing trade, which appreciates his action in providing a guaranteed rate of profit on the sales of his proprietary.

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The Perfect Food for Children, Adults and Invalids

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is the **ANTIDOTE** for all **POISONED SORES** and **BURNS. USED in TROPICS** for Bites, Stings and Poison-Plant Sores. Wherever recommended **HELIOS** brings **New Trade** and **Makes Friends. HELIOS** keeps good for years in all climates.

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The ORIGINAL and BEST. Extensively used throughout the world since 1844.
Best for the Public—Best for YOU—*all-ways.*
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is fully recognised by qualified judges, and it is certified by eminent Public Analysts and Pathologists to be

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It has been sold all over the world, and is being used to-day "back of beyond" as well as in the homes of our own country. Its sale is steadily increasing, old customers are retained, while new ones are being added. One or two displayed bottles will quickly establish business which will prove profitable and regular. Any assistance we can give in the provision of advertising material is yours for the asking.

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"YADIL" PASTILLES AND "YADIL" SOAP

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Dr. Page-Barker's Scurf & Dandruff LOTION

The recognised specific for scurf

EVERY bottle of Dr. Page-Barker's Scurf Lotion bears a positive guarantee that it will eradicate scurf or the purchase price will be refunded. This makes it the easiest to sell of all hair and scalp specifics. And the profit is handsome.

2/6

P.A.T.A.

PER 18/- DOZEN

SEE OUR NEW AND ARTISTIC SHOWCARDS

WRITE FOR EXPORT TERMS

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As a tonic to prevent hair falling, to promote growth and as a natural colour restorer for grey or faded hair,

MORGAN'S POMADE

has no equal. It has been before the public for 35 years and testimonials from all over the world prove its wonderful efficacy. Profits are generous, sales are quick, and customers are always satisfied. Morgan's Pomade is as near the ideal selling line as any hair preparation can be.

Retail 1/9 and 3/3 per pot, wholesale 14/- and 26/- per doz. On P.A.T.A. list.

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Keeps the hair in position and acts as a TONIC and INVIGORATOR. Retail 1/- per tin; Wholesale, 8/- per doz. Discount on larger quantities. Write for full particulars.

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The Public is asking for

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PURE CULTURE YEAST TABLETS

Manufactured by THE STANDARD YEAST CO., LTD., CHISWICK, LONDON

Special Bonus Offer for Window Display

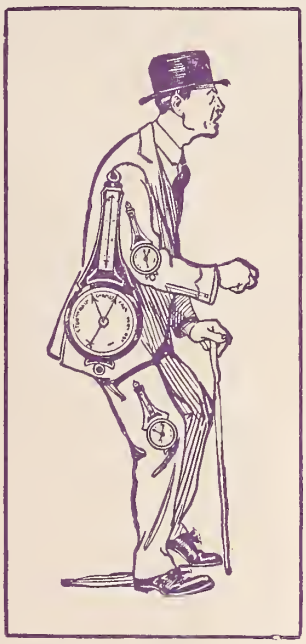
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2 doz.	25 size at	7/- net.	14 0	£1 1 0
2 ,,	50 ,, ,,	12/- ,,	£1 4 0	£1 16 0
1 ,,	50 ,, ,,	Bonus.	—	18 0
			£1 18 0	£3 15 0
			Net Profit	£1 17 0

1 Window Show Card
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2 Price Counter Cards
100 Leaflets

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It does not matter where the Barometer is

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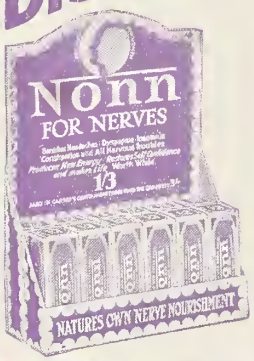
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(They cost 5/6 doz., and thus show 9½d. profit.)

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TRY THEM and you will always stock them.

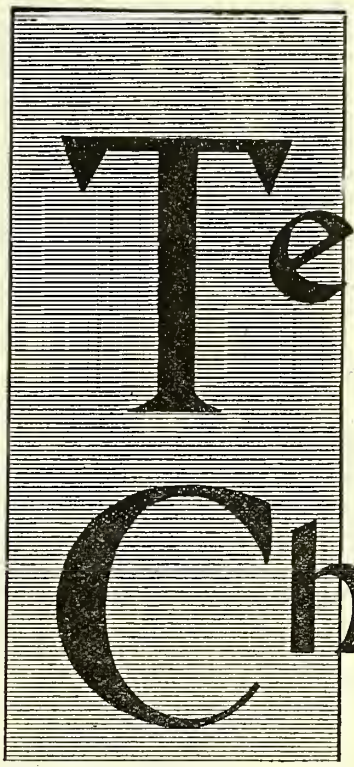
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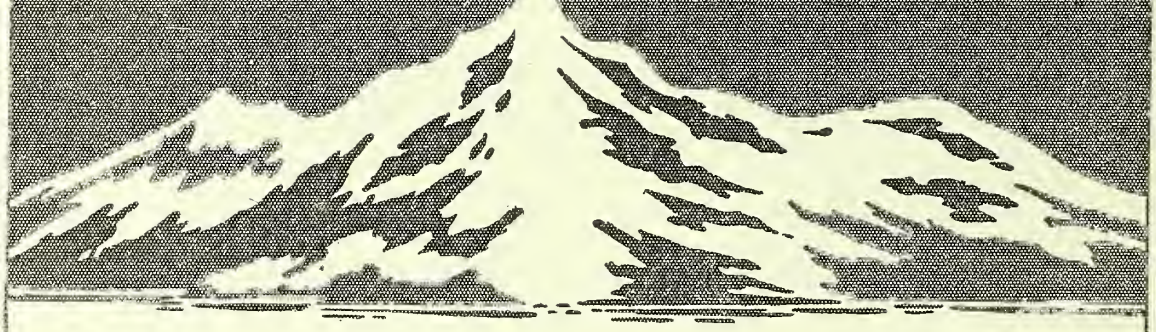
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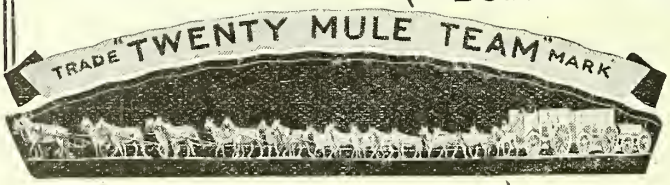
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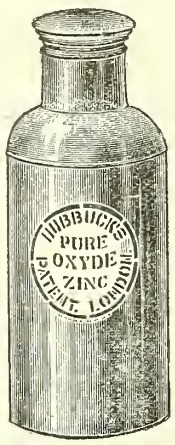
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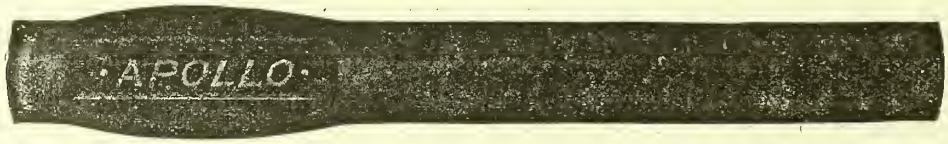
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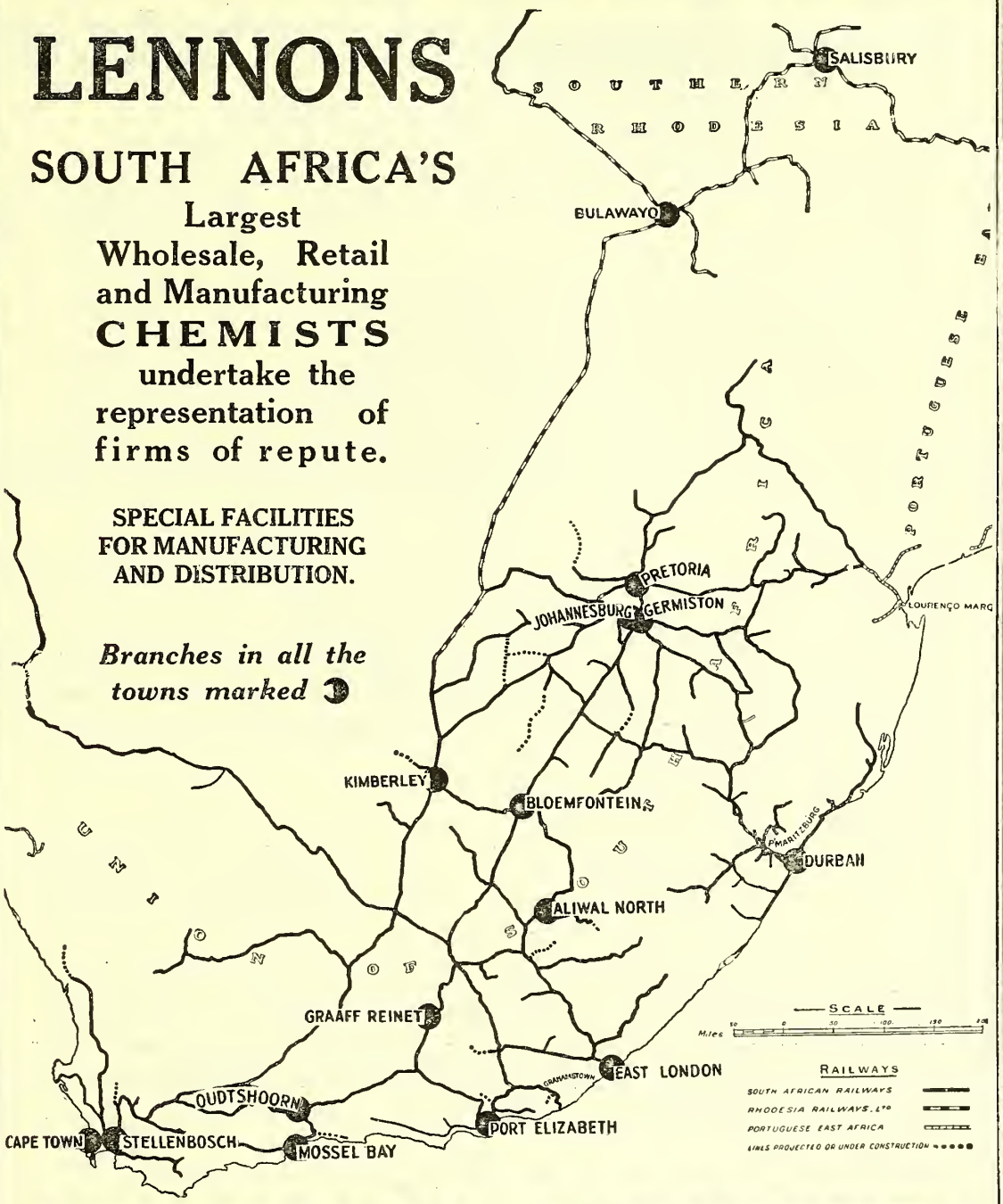
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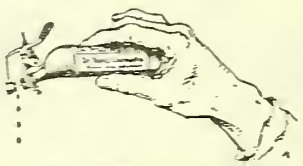
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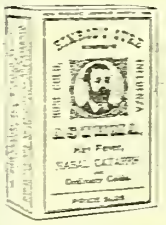
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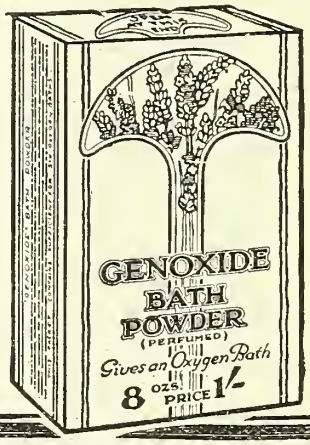
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and in ¼, ½, 1 and 2 gallon tins	
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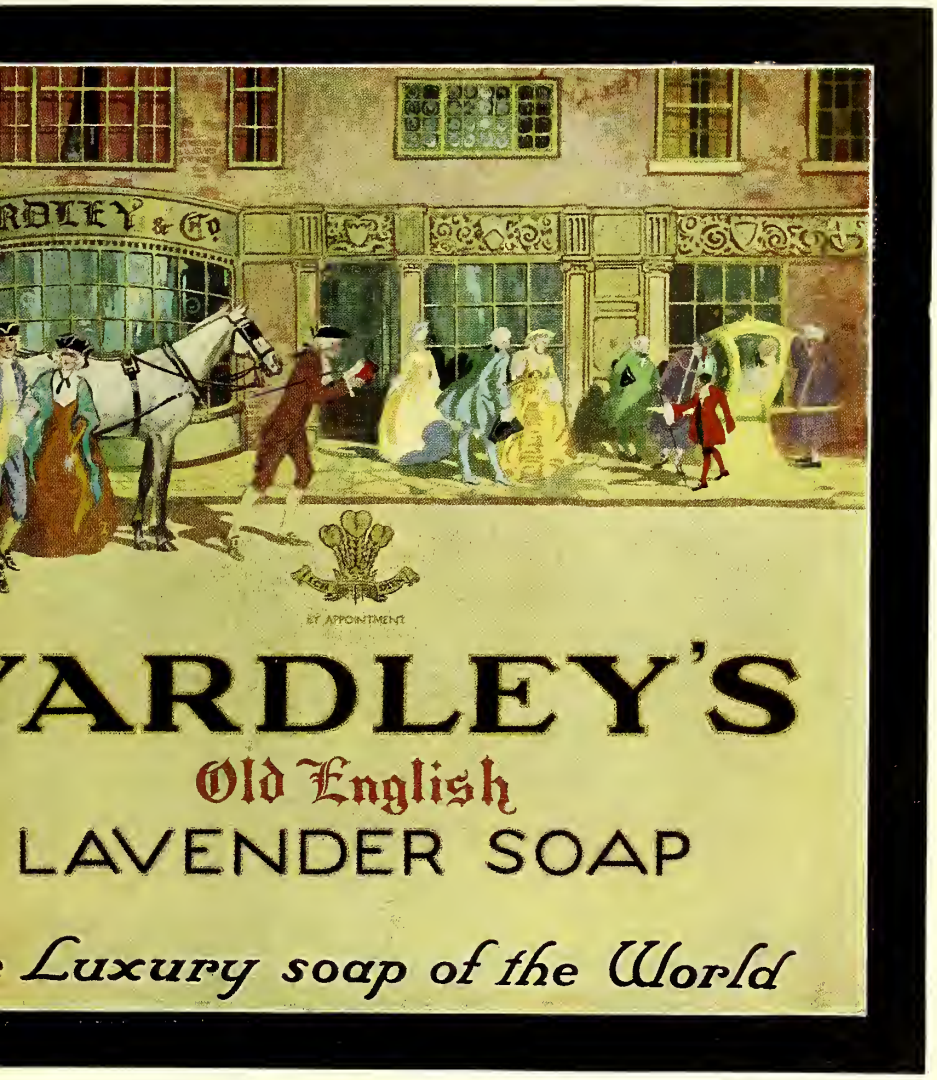


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FOR VARICOSE VEINS and invaluable in countless other cases wherever support is needed. 70% wool quality, made by a special process to ensure exceptional elasticity which is retained after constant washing. Fully guaranteeed and the Flesh Colour is almost invisible under silk stockings.

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Two more Quick-Selling Lines

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A distinct and exclusive line. Not an ordinary washing square, but a Friction Cloth of special weave with an invigorating and tonic action on the skin, ensuring health and beauty. In hygienic envelopes, attractively boxed.

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NORVIC Regd Abdominal Crêpe Binders

Have the same exceptional elasticity and durability as "NORVIC" Crêpe Bandages, and universally recommended by doctors and nurses for support in maternity and in all surgical cases.

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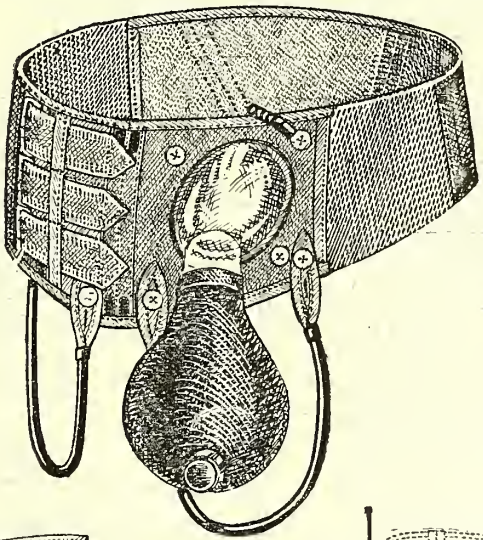
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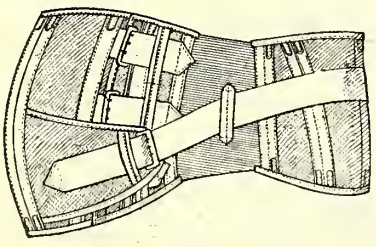
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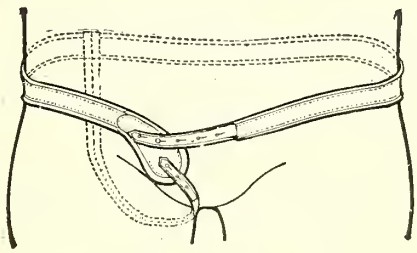
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Fig. E563.

BELTS
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"RIPLEY" BELT
Fig. B54.

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Fig. B1021.

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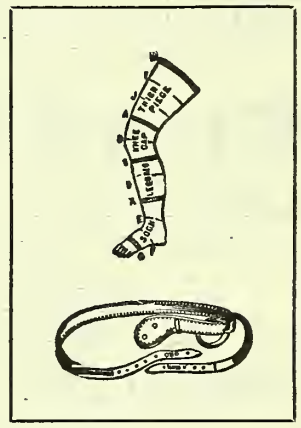
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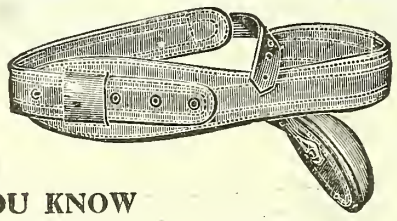
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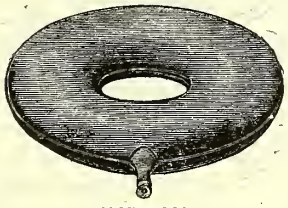
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BANDAGES
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WATER BOTTLES



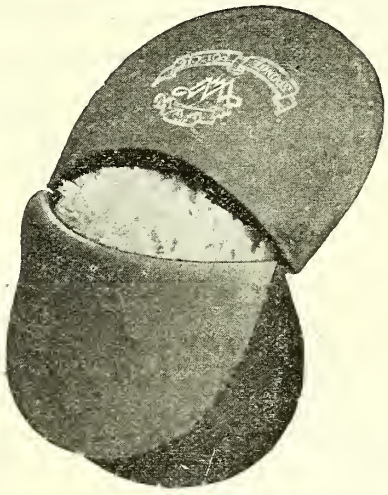
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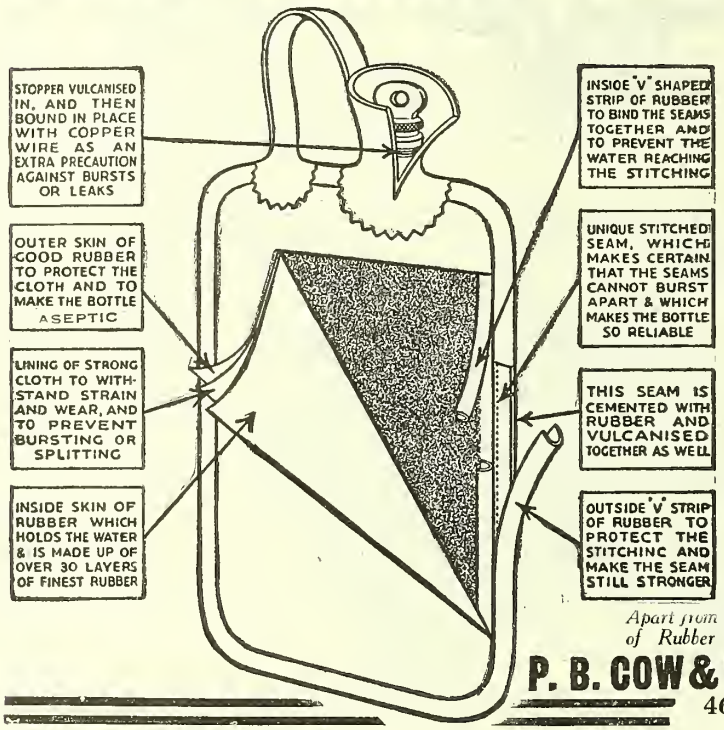
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sells itself !

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Place your Orders now for delivery when required and be sure of supplies.

Attractive showcards and advertising leaflets will be sent with all orders if desired.

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Established 1836

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Rubber Sponges



MONEY saved is money made, and the economical reliable and hygienic Rubber Sponge is to-day increasingly superseding the costly natural sponge.

Our "VICTOR" Rubber Sponge has for many years been acknowledged to be the ideal sponge, not only for toilet use, but also for washing down motor cars, saddlery and similar purposes.

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"For long service"

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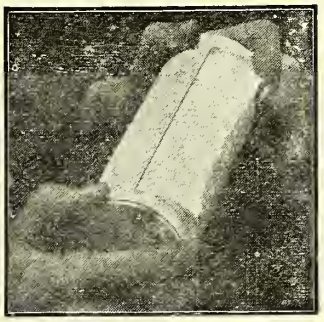
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"STERAID"

Absorbent & Medicated Dressings



Rotate the flange of the inner portion of the container in the direction of arrow until dressings appear and interior slot is visible.

MADE IN ENGLAND

The only packing in which contents are not handled or exposed to the atmosphere until required for use.

Patent Number 221761.

	Minimum Public Prices. Each			Minimum Trade Prices. Per Doz.		
	6-yd.	3-yd	1-yd.	6-yd.	3-yd.	1-yd.
Plain Absorbent	2/0	1/2	-/8	18/0	10/6	6/0
Sal Alembroth, Sublimate, Carbolic, Boric	2/3	1/3½	-/8½	20/3	11/6	6/4
Double Cyanide	2/6	1/5	-/9	22/6	12/9	6/9
Picric, Iodoform	3/0	1/8	-/10	27/0	15/0	7/6

		Min. Public Prices	Min. Trade Prices.
Absorbent Plain Lint, Boric ,,	2" wide	1/3 each.	11/3 dozen
Absorbent Plain Lint, Boric ,,	4" wide	1/9 ,,	15/9 ,,
Absorbent Plain Lint, Boric ,,	6" wide	2/3 ,,	20/3 ,,

There are approximately 6 yds. of Plain Lint or 4 yds. of Boric Lint in each Carton.

Obtain your supplies through your usual Wholesale House.

"CYNTA" Regd. SANITARY "TOWELINES" Regd.

COMFORTABLE, SOFT, ABSORBENT. LONG GAUZE ENDS AND LOOPS.

NO INFERIOR FILLING.

Size	0	1	2	3	4	
PUBLIC PRICE	1/-	1/2	1/7	2/-	2/3	Per pkt.
TRADE PRICE	8/9	10/2	13/9	17/5	19/7	Per doz. pkts.

Size "Superior" (Thick pad with Bandage ends, Sterilized and specially recommended for Accouchement).

PUBLIC PRICE **3/-** per pkt. TRADE PRICE **26/-** per doz. pkts.

"CYNTA" COMPRESSED TOWELINES

Each in Carton.

Size	1		2		3	
PUBLIC PRICE	2d.	each	2½d.	each	3d.	each
TRADE PRICE	15/3	per gross	18/1	per gross	20/4	per gross

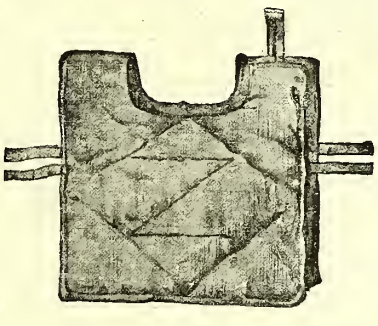
"CYNTA" COMPRESSED TOWELINES

Each in Carton with Safety Pins.

Size	1		2		3	
PUBLIC PRICE	2½d.	each	3d.	each	4d.	each
TRADE PRICE	16/-	per gross	18/10	per gross	21/1	per gross

"ZORBO"

PNEUMONIA JACKETS

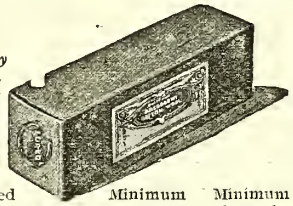


P.A.T.A. PRICES.			Min. Retail Price.	Min. Wholesale Price.
Size 1.	8×6	Infants' ..	1/– each	8/– dozen
,, 2.	10×8	Children's ..	1/6 ,,	10/9 ,,
,, 3.	12×10	,, ..	1/11 ,,	13/– ,,
,, 4.	15×12	Adults' ..	2/6 ,,	16/– ,,
,, 5.	19×13	,, ..	3/3 ,,	19/6 ,,
,, 6.	21×15	Extra Large	4/3 ,,	25/6 ,,

"ZORBO"

Superfine Sterilised Absorbent Cotton Wool

"Eminently suitable for surgical purposes."



All prices subject to alteration without notice.

Revised P.A.T.A. PRICES, JUNE 1927.		Minimum Retail Price.	Minimum Wholesale Price.	
1 lb. Packets		4/1 each.	33/-	Dozen.
8 oz. ,, ...		2/1½ ,,	17/-	,,
4 oz. ,, ...		1/1 ,,	8/9	,,
2 oz. ,, ...		7d. ,,	4/7½	,,
1 oz. ,, ...		4d. ,,	2/7½	,,
1 lb. Cartons		4/4½ ,,	34/10½	,,
8 oz. ,, ...		2/3 ,,	17/11½	,,
4 oz. ,, ...		1/2 ,,	9/4½	,,
2 oz. ,, ...		8d. ,,	5/2	,,
1 oz. ,, ...		4½d. ,,	3/0½	,,
IN HERMETICALLY SEALED CUTTER-LID TINS.				
1 lb. Tins		5/1½ ,,	40/11	,,
8 oz. ,, ...		2/9 ,,	21/9½	,,
4 oz. ,, ...		1/6 ,,	11/11	,,
2 oz. ,, ...		11½d. ,,	7/6½	,,

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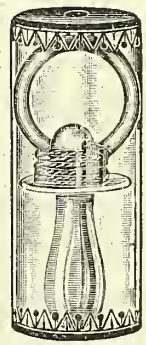


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there are opinions For and Against it, but everybody agrees that Feeding Bottle Teats and Baby Pacifiers should be protected from exposure to dust and contamination whilst they are on display.



GRIP-TIGHT Feeding Bottle Teats and **Baby Pacifiers** are packed in **Hygienic Transparent Tubes** so that whilst they are kept clean they are also exhibited most attractively

SALES are considerably INCREASED, and on account of the greatly stimulated demand for this style of packing we are able to offer it at PRICES NOT MUCH HIGHER than those for loose or carded goods.

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WE SPECIALISE in PACIFIERS, FEEDING BOTTLES and TEATS and can offer a BIGGER DISPLAY RANGE and a LARGER VARIETY OF PATTERNS than can be obtained from any other source.

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Please address inquiries in full

LEWIS WOOLF LIMITED

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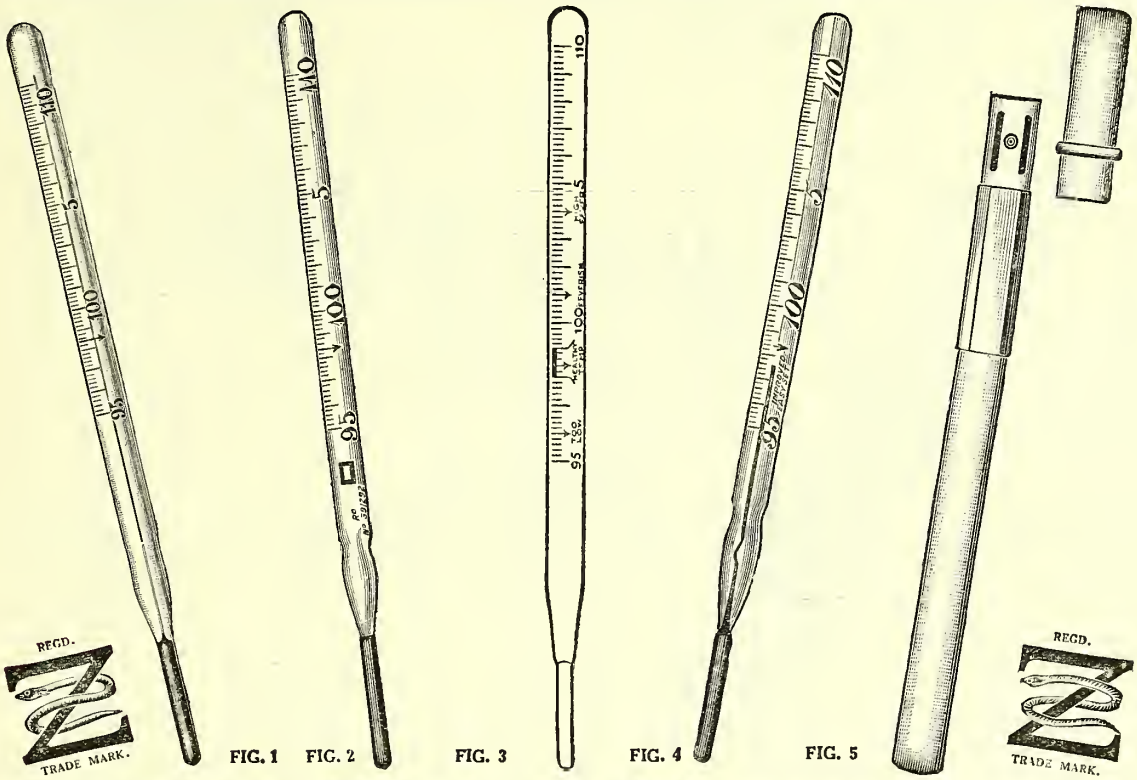


FIG. 1 FIG. 2 FIG. 3 FIG. 4 FIG. 5

ZEAL'S Clinical Thermometers have earned *your* customers' confidence!

They are sold with a printed guarantee of accuracy and reliability and the public know these qualities are the only ones that count in a Clinical Thermometer. Satisfaction always pays.

FIG 1. ZEAL'S NON-MAGNIFYING Pattern for hospital or institution use.

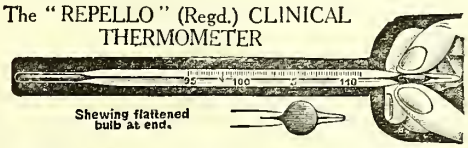
FIG. 2. ZEAL'S MAGNIFYING Clinical Thermometer with index guide. Easy to read. See FIG. 2 at top.

FIG. 3. The "SENTINEL" (Regd.) A Clinical Thermometer that is easy to read and specially designed for family use. A boon to mothers. Separately boxed. Full directions for use.

FIG. 4. ZEAL'S "EASY-SET" Thermometer, capable of being reset in shortest possible time.

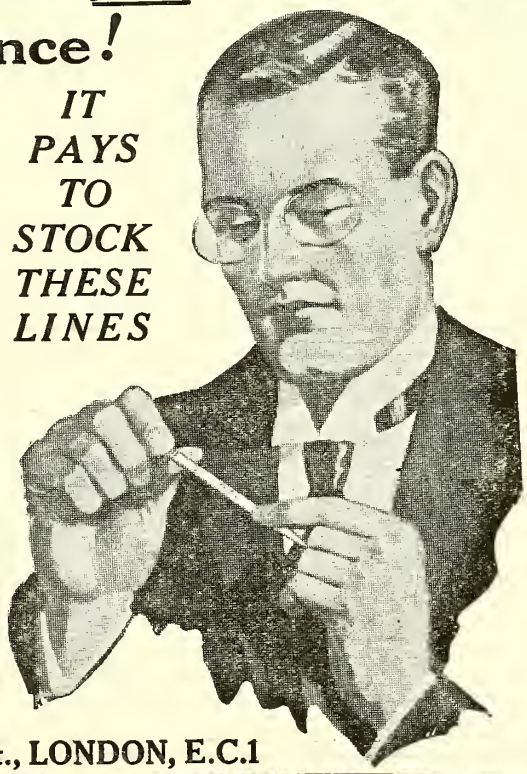
FIG. 5. CLINICAL THERMOMETER CASE. See illustration 5 at top.

The "REPELLO" (Regd.) CLINICAL THERMOMETER



The ideal Thermometer for a medical man. No shaking down required. Always reliable and accurate.

IT PAYS TO STOCK THESE LINES



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"The temper of finest Steel"

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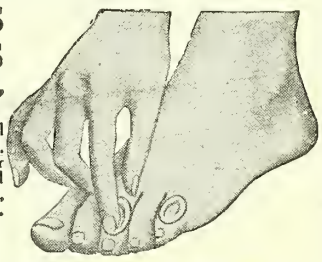
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R. H. Blaker

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For Corns, Bunions, and Callouses.



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Dr. Scholl's Zino Pads remove the cause, prevent all chafing and rubbing, are self adhesive—require no strapping, are applied in three seconds and do not come off even when bathing. Retail price per box **1/3.**

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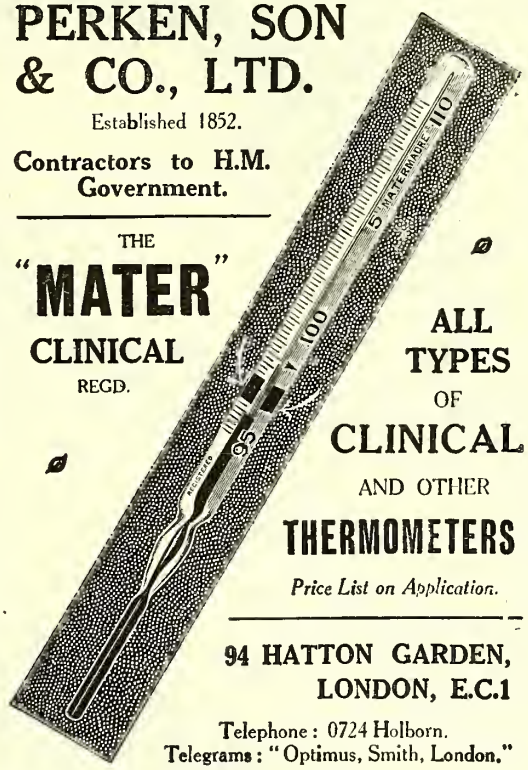
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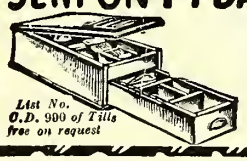
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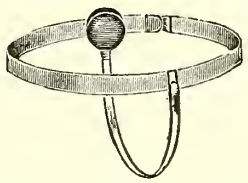
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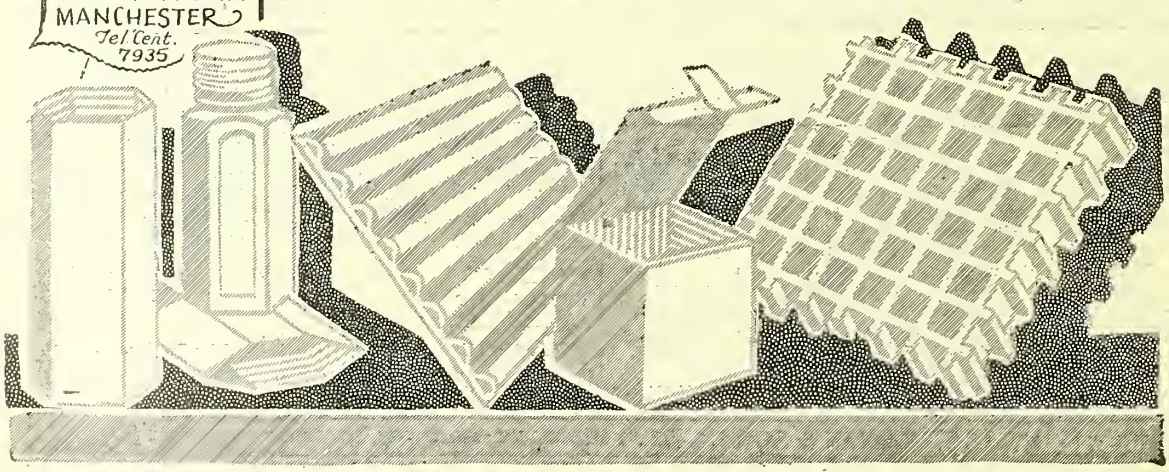


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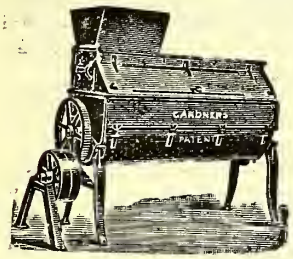
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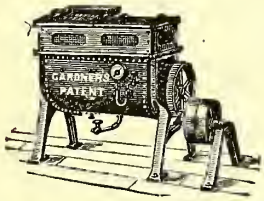
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GARDNER'S PATENTS

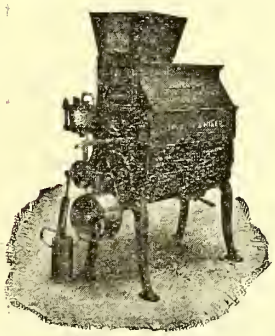
cover the whole field of Reducing, Sifting, Mixing & Drying of all Powders with such adequacy & perfection as to remove the element of doubt from all those processes.



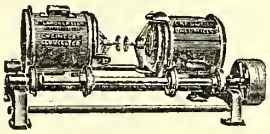
Gardner's Patent "Rapid" Sifter and Mixer for all kinds of Dry Powders.



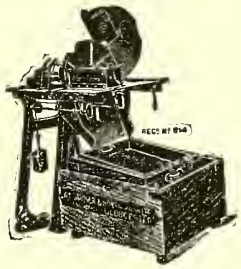
Gardner's Patent "Rapid" Dryers for removing Moisture from Powders, Chemicals, etc.



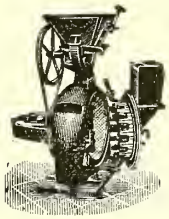
Gardner's Patent "Rapid" Sifter, Mixer and Sprayer for Adding Essences, Perfumes, etc., to Powders.



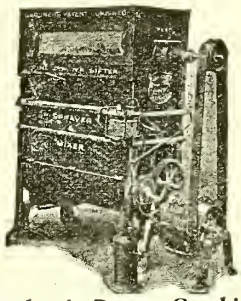
Gardner's Ball Mills, for Grinding Colours, Enamels, Paints, Drugs, Crystals, etc.



Gardner's Patent Shredding and Granulating Machine for all kinds of Waxes, Fats, etc.



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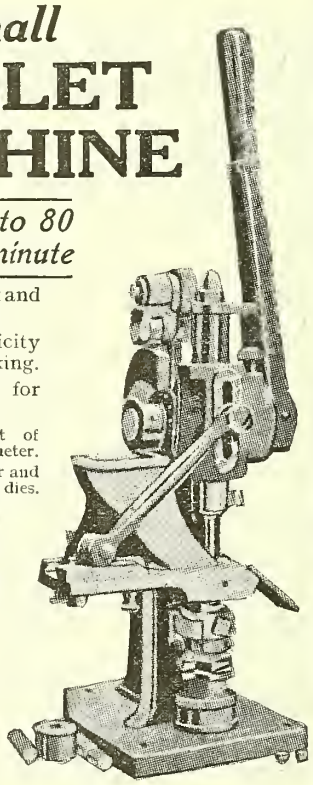
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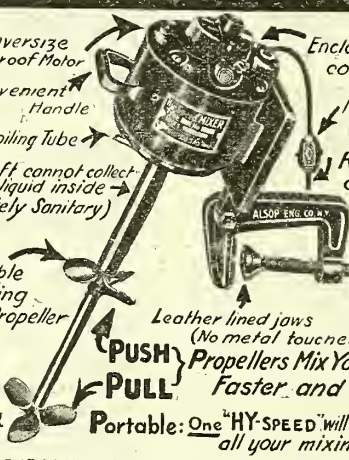
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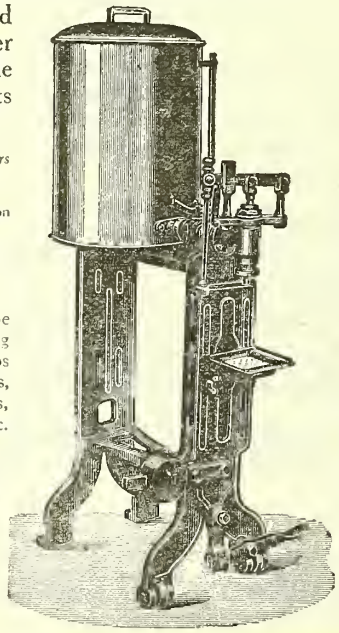
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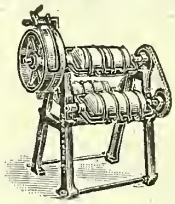
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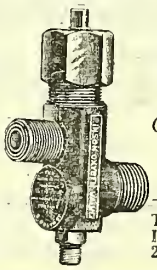
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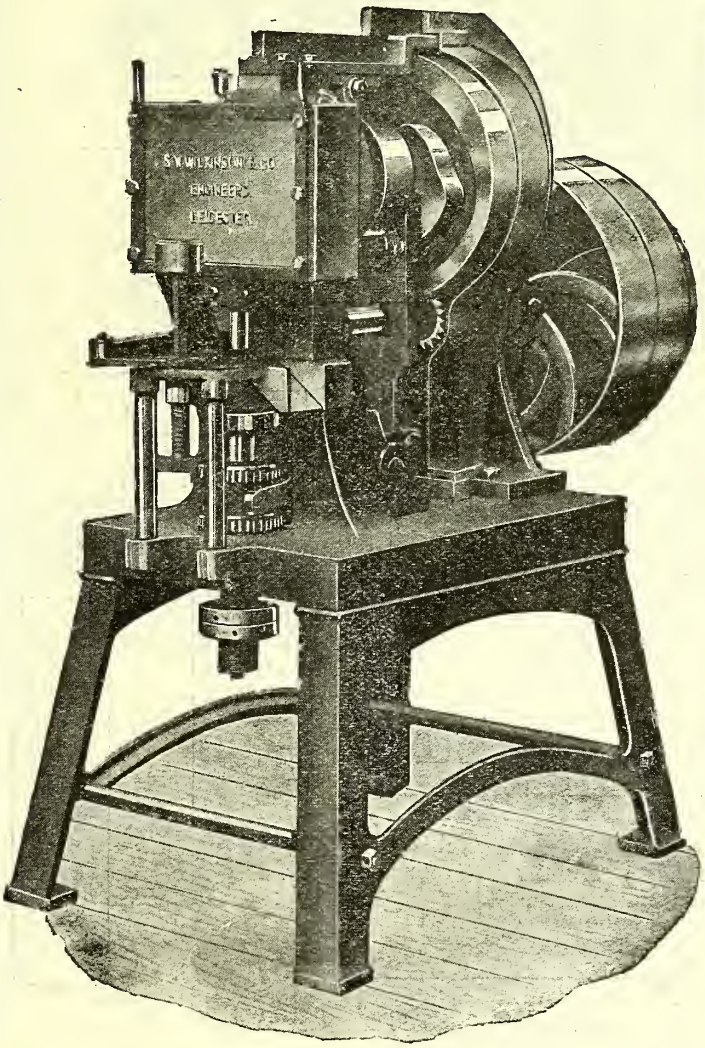
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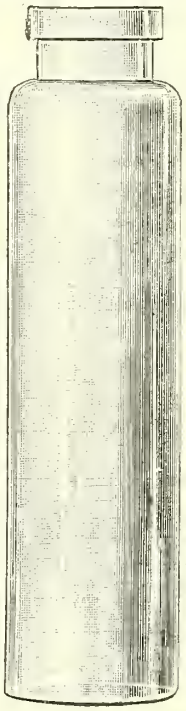
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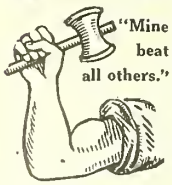
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GOLDBEATERS' SKIN for Medical use.

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CAPPING SOLUTION

The Quickest and most Economical Method.

MADE IN ALL COLOURS.

SEND FOR SHADE CARDS.

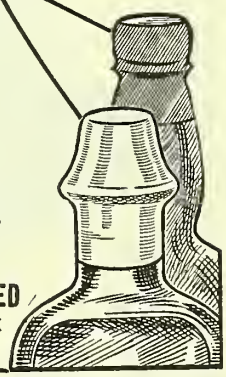
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DRY. SELF-FIXING. ALL SIZES.

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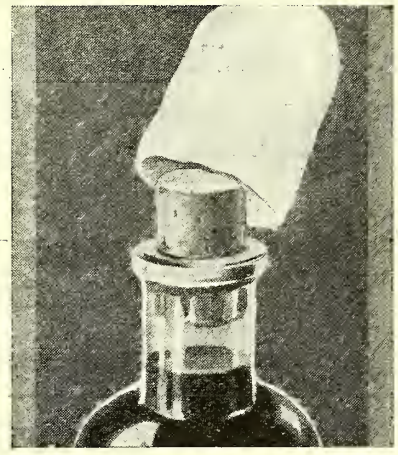
Bottle Caps

Enquiries Invited. Samples Submitted.

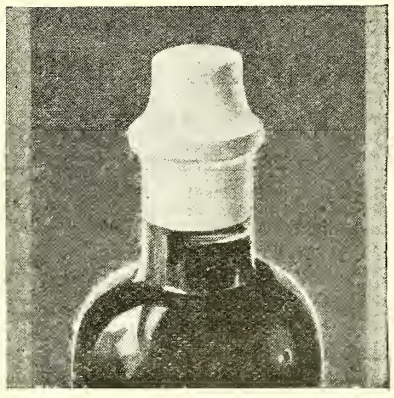
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You just slip them on the bottle —that's all!







The "Viskap" is the quickest as well as the neatest of all capping methods. You simply slip the wet "Viskap" over the bottle neck and leave it to dry. That's all! As it dries it fits tightly and takes the shape of the cork, stopper or sprinkler.

The "Viskap" is simplicity in itself, a saving in time and money, and affords a permanently clean and attractive finish to your bottles.

The "Viskap" is a perfect hermetic seal that is air-tight, grease-proof, spirit-tight and odourless. It is ready for use when you receive it.

Obtainable in white or colours, either opaque or transparent.

"Viskap" is British to the Backbone.

Make your bottles look better with the BRITISH

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Large Stocks of PHIALS, PANEL FLATS, COUGH MIXTURE PANELS, MEXICAN FLATS, CANNON ESSENCES, &c., at low prices.

Write for Prices to—

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GUARANTEED FULL CAPACITY.

These bottles are much stronger than hand-made and reduce breakages to a minimum.

2 oz. 14/6, 3 oz. 16/6, 4 oz. 18/6, 6 oz. 22/-, 8 oz. 23/- gross.

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The quality of which is averred by users to be SUPERIOR TO THAT WHICH IS CLAIMED FOR IT

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BEST IN QUALITY & APPEARANCE

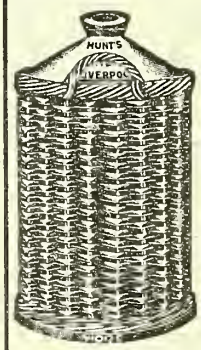


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FOR SPIRITS, ESSENCES, CHEMICALS, ETC.

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HOW does it travel? It's fine to put "This way up with care" but there's no certainty of its being obeyed. And with old-fashioned closures there's danger of leaks and loss.

That's why modern manufacturers use Kork-N-Seal. They want, and get, simplicity and efficiency. Kork-N-Seal containers are—

OPENED IN A SECOND
CLOSED IN A SECOND
AND ALWAYS A PERFECT SEAL

They need no corkscrews or openers — just a simple finger action.

The only perfect re-seal! The last drop in the bottle as good as the first and that's what your customers want.

KORK-N-SEAL

REGISTERED TRADE MARK

LOCKS THE BOTTLE



British made throughout by

The BRITISH KORK-N-SEAL AGENCY Ltd.
Manufacturers of Aluminium, and Decorated Tin closures of every description.

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Well-Organised and Extensive Works enable us to quote competitive prices and give prompt deliveries. We invite enquiries for every description of Bottle, either Hand- or Machine-made. If well-finished Bottles interest you ASK US TO QUOTE.

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THE BEST FOOD IN BABYDOM

Every child leaving the breast or dried milk needs the benefit of "Wheatrex" to bridge successfully the gap between infancy and childhood

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ALL UNSOLD STOCK

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should be returned *forthwith* for replacement with fresh stock!

WE PAY CARRIAGE ONE WAY

KING'S SYNCHRONISED DATING SYSTEM MEANS:

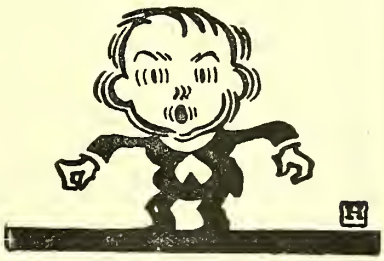
Stock always up-to-date.

Replacement of unsold stock every quarter.

No risk of handing out time-expired goods to your customers.

Reduces your postage on odd tins to one charge per quarter for one parcel (if any).

Your profits are protected by the P.A.T.A. Your losses are protected by KING'S.



Portrait of a Gentleman who has remembered that the tin of Patents he has just sold went out of date three days ago. No wonder he's excited!

GEO · KING · & · CO · LTD

Albion Food Mills · Sycamore St · Old St · E·C·1

"LACTREX" "WHEATREX" "OATREX"

Surgical Dressings

"STAG" BRAND



ESTABLISHED 1839.

Specialities:

ABSORBENT COTTON LINTS, WOOL, GAUZES, ROLL BANDAGES, either plain or medicated, with **ANTISEPTICS** according to the directions of Lord Lister.

ABSORBENT SPONGES AND GAUZE PADS.

ASEPTIC DRESSINGS of all kinds, packed under ROBINSON'S PATENT.

CELLULOSE WADDING, manufactured from Pure White Pitch Pine Fibres.

COMPRESSED DRESSINGS—of great convenience where storage room is limited.

Specialities:

GAMGEE TISSUE, of which Robinson & Sons, Ltd., are Sole Makers.

ROBINSON'S DRESSING: A combination of Absorbent Cotton and Cellulose Wadding.

ROBINSON'S TISSUE: As above with Gauze covering.

SANITARY TOWELS FOR LADIES.

SPECIALITIES: **MENE TOWELS.**
"SUCAN" CELLULOSE TOWELS.
ACCOUCHEMENT OUTFITS.
PNEUMONIA JACKETS.

DRESSINGS—"B.P.C.," "N.H.I." and FIRST AID.

PROMPT DELIVERY GUARANTEED.

Capsicum Tissue

Made from our well-known Gamgee Tissue, charged with the active essence of Capsicum and Methyl Salicylate.

The distinctive feature of our Manufacture is the combination of Methyl Salicylate with the Capsicum.

The Gamgee Tissue is found to be a much more convenient vehicle for the Capsicum, etc., than ordinary absorbent Cotton Wool, as it lends itself more readily for application to the parts affected.

Supplied in bulk in 1-lb. rolls, or cut to any size required. We can supply you with cartons and labels free from stamp duty, or pack it for you in cartons ready for sale.

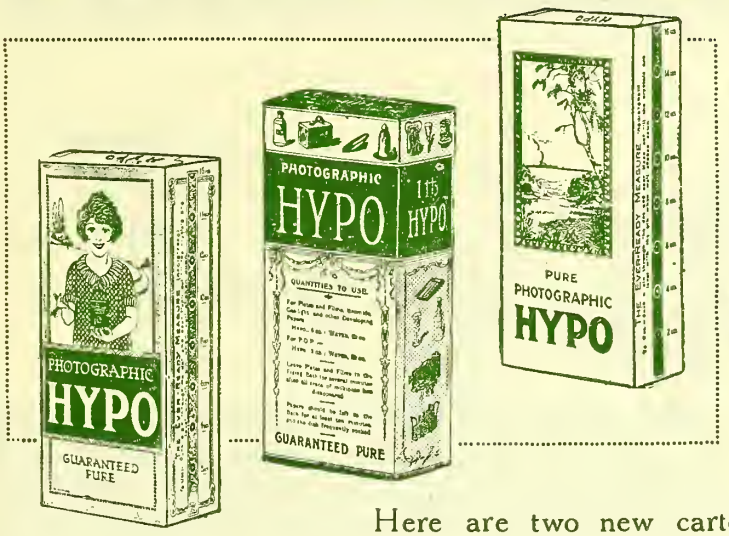
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New cartons that will attract new Business

Here are two new carton designs for Hypo packing. See how clearly they show up, and judge the good display they will make.

Use these new cartons this year, and your business will carry the stamp of progress and enterprise. You will find, too, that sales will benefit all round.

These new cartons are available in two colours—green and buff.

NOTE THIS USEFUL EVER-READY MEASURE

It is a feature that will prove of extreme utility to all Hypo buyers. By solving what is often an awkward problem it will easily double sales. It certainly allows the correct quantities to be measured out.

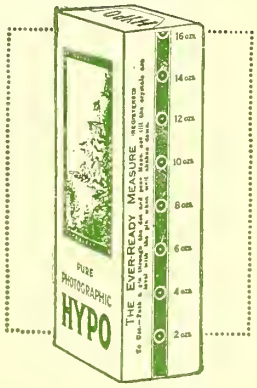
This ever-ready measure marks the most useful introduction in Hypo packing. See that your customers get the benefit of it.

Have you received our price list and samples yet?

ROBINSON & SONS, LTD.

MANUFACTURERS OF PHOTOGRAPHIC CARTONS OF ALL KINDS

CHESTERFIELD



Robinsons have been specialists in packing and containers for years. If you have a problem they will solve it for you.

You cannot buy better than the Best!



If it's

MALT EXTRACT

OR

MALT & OIL

ask for our samples and prices before buying

PRICE – *RIGHT*
QUALITY – EXCELLENT

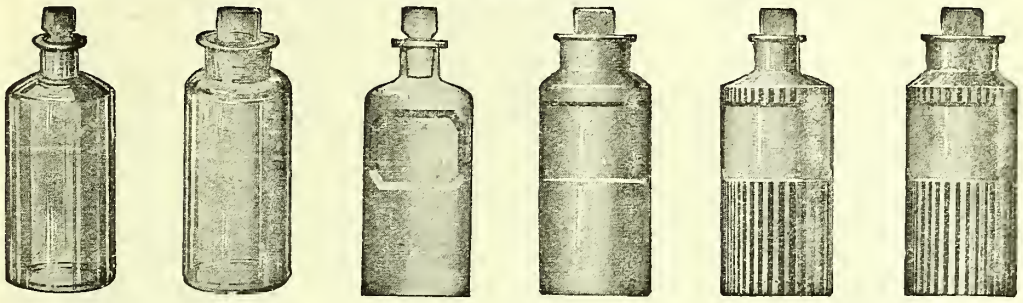
and it's

THE MALT THAT CANNOT CRYSTALLISE

Wholesale & bulk enquiries specially invited

JEFFREYS, MILLER & CO. LTD.
LEYLAND MILLS, WIGAN

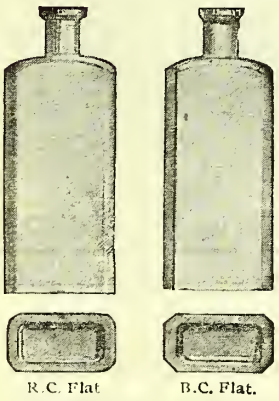
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Hand-turned Shop Rounds. Recessed Shop Rounds. Recessed Poison Rounds.

SHOP BOTTLES

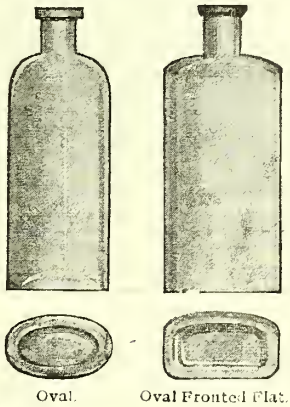
of the finest finish. Perfect Stoppering. Made in glass free from arsenic and lead; this feature is of vital importance in the case of Shop Bottles.



R.C. Flat. B.C. Flat.

DISPENSING BOTTLES—

accurate in Capacity, free from arsenic and lead, and handsome in appearance. The aristocrats of bottles.



Oval. Oval Fronted Flat.

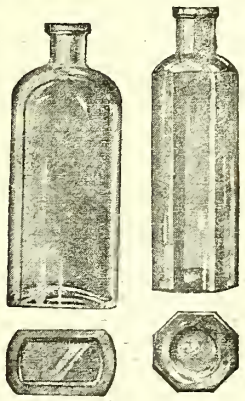


B.C. Square. R.C. Square.



DOUBLE-ENDED FEEDERS

The finest the world has yet seen. Made in beautiful lustrous white flint glass which is so durable that it may be boiled continuously for twenty-four hours without shewing signs of deterioration.



Oval, 2 Flat Sides. Octagon.

Sold by all the Leading Wholesale Houses.

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FREDERICK HAMPSON - - Perseverance Glass Works, SALFORD.

SUCCESS

WE CANNOT OFFER YOU
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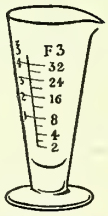
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FOR ITS ACQUIREMENT
IS THE FIRST PRINCIPLE
OF OUR BUSINESS.

NEWBERYS

CHARTERHOUSE SQUARE,
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Branches at CARDIFF and LIVERPOOL.

DISPENSING MEASURES



If you want
Accurate
Well-Made
Well-Finished
Entirely Reliable
British Made



MEASURES OF ALL KINDS

insist on having a "Bush" measure bearing this mark, which guarantees full satisfaction.

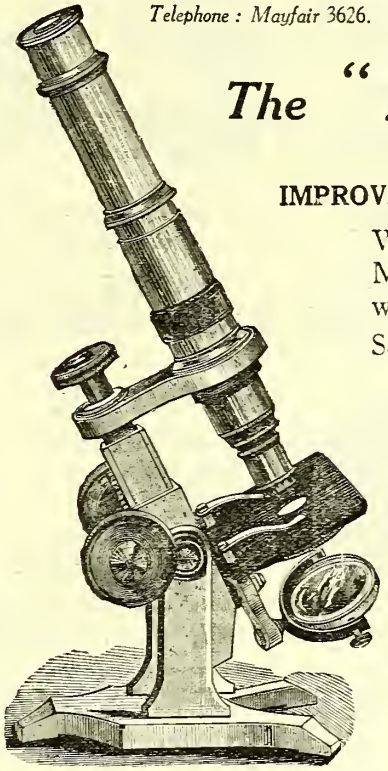
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WHOLESALE AND EXPORT ONLY.

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IMPROVED MODEL

With two eye-pieces, one 5/8 and 1/7 object glasses. Magnifying power 50 to 420 diameters. In case with lock and key.

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"The Lancet" says :

"We can conscientiously recommend J. Pillischer's Microscope to all who really want a useful instrument for Histology or Pathology."

Inquiries invited for all other kinds of Microscopes, Optical, Mathematical, Philosophical, Meteorological and various other kinds of scientific instruments.

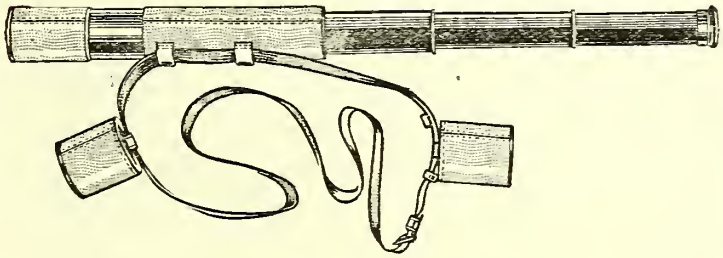
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in leather case

FROM **£2 : 10 : 0**

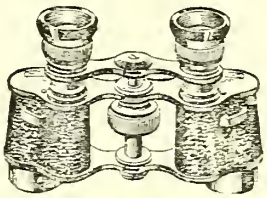


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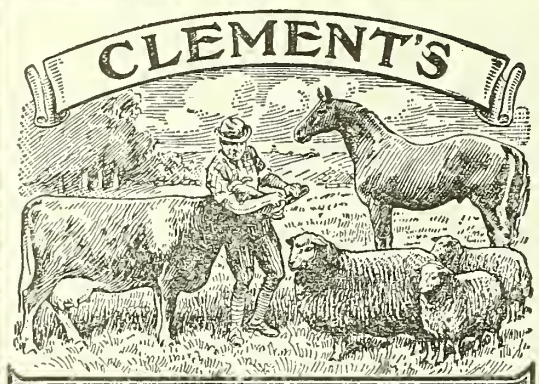
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An improved Prism Binocular, with central focussing wheel and adjusting eye piece ; magnification x 8. This excellent instrument gives wide field of view and clear definition. Complete with solid leather case and straps.

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Other models up to £25 6s.

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This Medicine is a certain cure for many of the most distressing ills to which Horse and Cattle Flesh is heir. It surpasses all other Remedies in its promptness of action.

WHY
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PAYS TO STOCK.

BECAUSE it enjoys the largest sale of any Cattle Medicine Preparation and is on the P.A.T.A.

BECAUSE it is consistently advertised and all advertisements refer to the Chemist as the source of supply.

BECAUSE it is well packed, does what it is advertised to do, and shows the trade a satisfactory profit.

BECAUSE we do not employ travellers to call on Farmers or solicit orders at cattle fairs or markets.

One size, retailed at face value, viz.

PER 3/9 BOTT.

Terms - Cash with order.
Carriage paid. Cases free.

1 doz., 36/- per doz. 6 doz., 35/- per doz.
3 doz., 35/6 „ 12 doz., 34/6 „

Stocked by most Wholesale Houses.

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BRISTOL.

HARVEY'S

Watts' Embrocation, or Curb Bottle.
Aconite Powders.
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Hair-Restoring Ointment.
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Great
Protected Prices (P.A.T.A.)
Remedies for the Horse

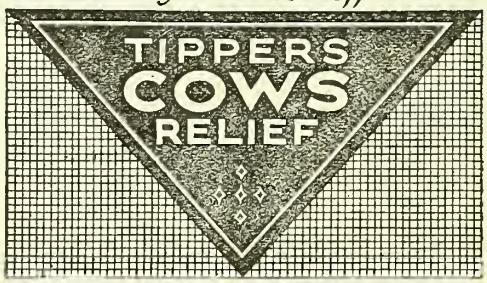


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Parasiticide.
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Of all the leading Druggists' Sundries Houses
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Undeniably the most effective.



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CURES SORE TEATS

PRICES 45/-, 21/-, 14/- & 6/- PER TIN.

B.C.TIPPER. & SON LTD. VETERINARY CHEMICAL WORKS BIRMINGHAM

Announcing **Reduced Prices—— for SHERLEY'S**

TONIC & CONDITION POWDERS

The Best tonic for all Dogs & Cats



THE enormous demand for Sherley's Tonic & Condition Powders has enabled us to reduce manufacturing costs. The saving thus effected is being passed on to the Trade in return for their co-operation in obtaining these increased sales.

6d. size 3/9 per dozen for quantities of 2 dozen and over. Less than 2 dozen, 4/- per dozen.

1/3 size 9/4½ per dozen for quantities of 1 dozen and over. Less than 1 dozen, 10/- per dozen.

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The lower prices will also apply to any quantities when included in £2 parcels.

Quantities of two dozen 6d. packets, or one dozen 1/3 packets supplied on attractive cards, if desired.

The rate of profit to Chemists who take advantage of special quantity terms is thus 37½% (60% on cost), while on £2 parcels, in which Tonic and Condition Powders are included additional discounts of 2½% and 5% are allowed. Get your new stocks NOW!

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Specialists in Design and Manufacture of

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Specially packed for the Chemists' Trade.

POWDER, PASTE & LIQUIDS (Poisonous and Non-Poisonous), **WEED KILLERS, WORM KILLERS, LAWN SAND, DISINFECTANTS, SUPERFINE LYSOL.**

Let us quote you for your requirements.

BATTLE, HAYWARD & BOWER, Victoria Chemical Works, LINCOLN.

BATTLE'S VERMIN KILLER

Of all Patent Medicine Houses at 3/-, 5/6, 9/-, 18/- and 36/- per dozen.

In packets at 5d., 9d., 1/3, 2/6 and 5/- each. (P.A.T.A.)

The *sure* destructive agent which may be confidently recommended by Chemists for quick clearance of rats and mice. (*Users' testimonials on request.*)

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Continuous and Steadily Advertised Goods
FOR DESTROYING RATS AND MICE

DANYSZ VIRUS

	Retail Price (Protected).	Net Wholesale Prices
Virus for Rats and Mice, single tube.	2/-	15/- per doz.
3 tubes,	5/-	
Virus for Mice only - - single tube	1/6	9/- „ „
3 tubes,	3/-	

Date-expired tubes returned to us postage paid will be exchanged free of charge.

Danysz Virus in Liquid Form

	Retail Price.	Wholesale Price
Quart Bottles 6/- each		4/6 each
Pint „ 4/6 „		3/9 „

HALLER'S EXTRACT OF SQUILL and DANZO RAT KILLER

Discount off Retail Prices 25% Monthly Account, or 33⅓% cash with order.

	Retail	Monthly a/c	Cash with Order
½ gall. tins ..	10/-	7/6	6/8
1 „ „ ..	18/-	13/6	12/-
5 „ „ ..	80/-	60/-	53/4

DANZO BEETLE POWDER

For destroying Blackbeetles, Cockroaches, Crickets, &c.

Retail Prices (Protected).	Wholesale prices per doz.
In tins 3d.	In boxes of 2 doz. 2/1
„ 6d.	„ „ 1 „ 3/8
„ 1/-	„ „ 1 „ 7/3
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Danzo Beetle Powder will not deteriorate by keeping.

CARRIAGE PAID ON ALL ORDERS.

To be obtained from

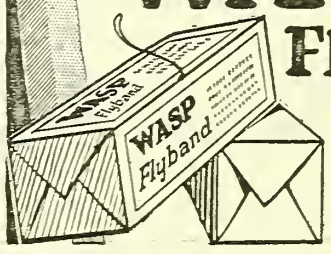
HALLER LABORATORIES, LTD.
325 Borough High Street, LONDON, S.E.1
Telegrams: "Virudana, Sedist, London." Telephone: Hop 2717

THE FLY PEST

is here again. Earn good profits by selling Wasp Flyband—the most effective Fly Catcher.

Wasp Flyband keeps in condition indefinitely. There is no dead stock left on your hands. It is the quickest, surest and most hygienic way of exterminating flies. All users are satisfied. Stock Wasp Flyband NOW!

THE **WASP** **Flyband**



Manufactured by
F. W. HAMPSHIRE & Co. (1927) Ltd., Sunnydale Works, Derby.

"The good British habit . . . of keeping a dog in decent condition"... has created a *world-wide demand* for Bob Martin's dog medicines

An extract from a letter recently received:—

"During the last seven years my travels have taken me to Canada, the West Indies, Australia, New Zealand, Malaya, Burma, India, Kenya and South Africa. Being a doggy person I "talk dogs" with every enthusiastic dog owner I meet, and in every one of these British dominions and colonies I met someone who uses your medicines, etc.

"To me, there is something very British about the practice of keeping a dog in decent condition instead of letting him fend for himself as best he can, and I hope this is yet another of the good British habits that will in time spread across the whole world."

40 years of practical and successful experience in the breeding and management of dogs is at the back of every Bob Martin preparation.



1 and 2. Bob Martin's **Tasteless Condition Powders** purify the blood and tone up the system. In **6d.** packets (of 9 powders) and **1/-** boxes (of 18 powders). Trade terms, **3/9** and **7/6** per dozen.

3. Bob Martin's **CLEANSFUR,** an antiseptic dry shampoo for dogs. **6d.** per packet. Trade terms, **4/6** per dozen.

4. Bob Martin's **'92 Ointment** for Mange, Eczema, Ear Canker, Cuts and Skin Abrasions. **1/-** per tin. Trade terms, **9/-** per dozen.

5. Bob Martin's **CHALK BLOCK. 6d.** each. Trade terms, **4/6** per dozen.

6. A series of leaflets which all your dog-owning customers will wish to read. A very successful sales aid.

7. A 3-piece screen, 22" × 28½", which makes a fine background for a display of dog medicines. Please advise us if you would like one of these screens.

The dog medicine with the largest sale in the British Empire is Bob Martin's Tasteless Condition Powders,

and the other Bob Martin preparations are also the biggest sellers of their kind. This has been brought about by educative advertising and by the recommendations, over 37 years, of the leading Breeders and Fanciers.

A COMPLETE RANGE OF BOB MARTIN LINES can be had for £1 12s. 3d.

The retail price of this parcel is £2 8s., and is made up of:—

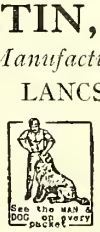
			s.	d.	s.	d.
2 doz.	6d.	Condition Powders, mixed	@ 3	9	7	6
1 ,,	1/-	Condition Powders, mixed	@ 7	6	7	6
1 ,,	6d.	Distemper Powders ..	@ 3	9	3	9
½ ,,	6d.	Worm Powders	@ 4	6	2	3
½ ,,	6d.	Worm Tablets	@ 4	6	2	3
½ ,,	6d.	Cleansfur	@ 4	6	2	3
½ ,,	6d.	Chalk Blocks	@ 4	6	2	3
½ ,,	1/-	'92 Ointment	@ 9	0	4	6
					£1 12	3

With this parcel will be sent a good selection of sales literature and display materials.

BOB MARTIN, LIMITED

Dog Medicine Manufacturers since 1892

SOUTHPORT, LANCS., ENGLAND



Your D. & P. will Challenge the Trade

if you know the Secret—Your work will always be the best and always to time if it is done by

Photopress 10 Johnson's Court Fleet St., London, E.C.4.

THE SOUTH OF ENGLAND COLLEGE OF PHARMACY

186 CLAPHAM RD., LONDON, S.W.9

Principal: H. LUCAS, Ph.C., F.C.S.,
Assisted by a fully qualified and competent staff.

EXAMINATION RESULTS

During the present session 1928-9 (October-April), 102 students have passed their examinations for this college. **Part I, 46; Part II, 56.**

A new session starts on October 10th. Part I. **6 months, fee 20 guineas.** Part II. **9 months, fee 30 guineas.**

Revision courses for Parts I and II start on August 7th. Fee till October Examination, **6 guineas.**

For all particulars apply The Principal.

WESTMINSTER COLLEGE OF PHARMACY.

WILLS' UNIVERSAL POSTAL SYSTEM

FEES (GT. BRITAIN & N. IRELAND)

PRELIMINARY SCIENTIFIC COURSE	£1 1 0
QUALIFYING COURSE	£1 1 0
COMBINED COURSE	£1 11 6
APOTHECARIES' HALL COURSE	£1 11 6

POSTAL COURSE PROSPECTUS POST FREE from The Secretary,

190 CLAPHAM ROAD, S.W.9.

Recommend Agfa FILMS and keep your customers!

THE quality of Agfa Roll Films and Film Packs is proved! They are faster. They are more sensitive. They do give perfect pictures in all weathers. Amateur Photographers know this. That's why they demand them above all others, and use them regularly! Customers to whom you sell and recommend Agfa Films will return to you again and again and bring their friends. It'll pay you many times to push

Agfa ROLL FILMS FILM PACKS

CAMERAS, RODINAL, GASLIGHT & BROMIDE PAPERS, PYROGALLIC ACID, HYDROKINONE, AMIDOL

AGFA, LTD., Vintry House, Queen Street Place, E.C.4.

C.F.H.

For Druggist Sundries Generally.

RENE HEYMANS, Ltd.

OF

9/10 DOMINGO STREET
LONDON, E.C.1

can give you prompt delivery and rock bottom prices. We are especially well placed for the following :—

PUFFS, Down and Wool, Infants, Vanity and all cheaper kinds for fitting up.

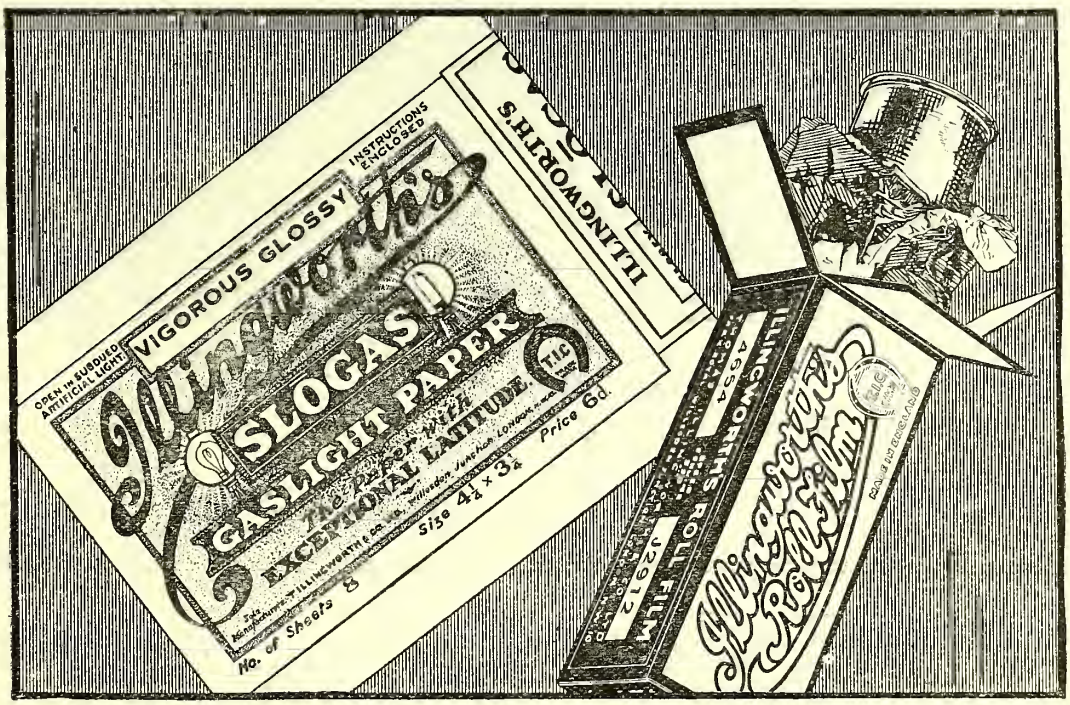
BONE and GALALITH SOOTHER FITTINGS, Rings, Mounts, and Shields, etc.

VULCANITE GOODS and fittings of all kinds.

Best Quality Guaranteed. Wholesale Only.

Telephone: Clerk 2718. Telegrams: Garage London.

Sell Illingworth's Roll Films and Slōgas! These two well-advertised products are in constant demand. They mean satisfied customers, quicker sales, and more money earned, so stock up NOW!

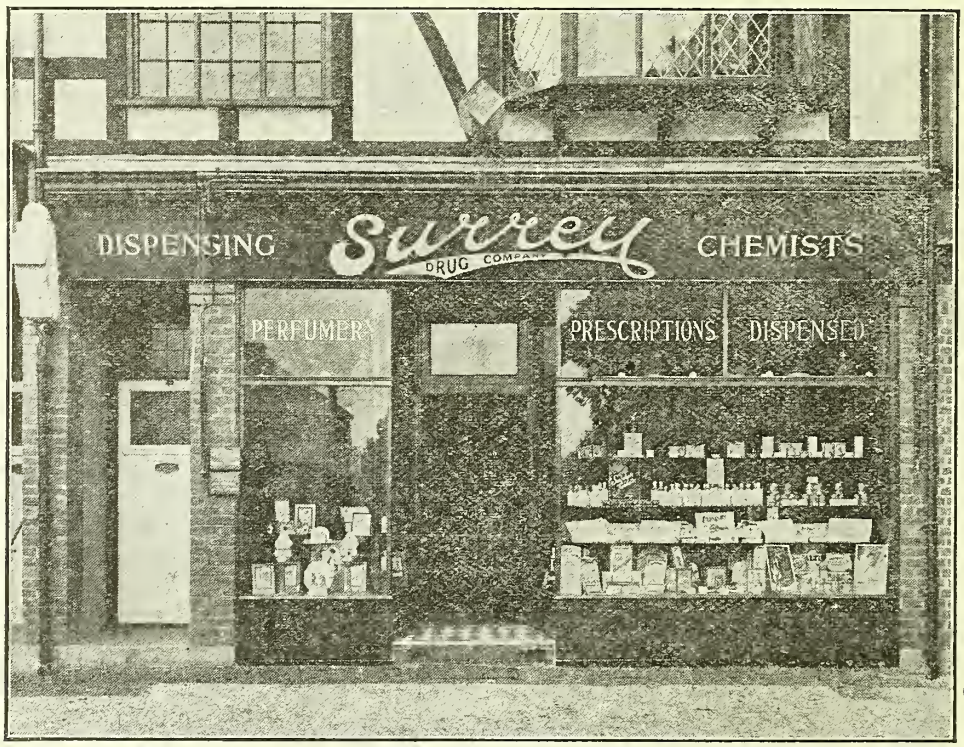


MADE BY

Illingworth's

PARK ROYAL, WILLESDEN JUNCTION, LONDON

Fittings for

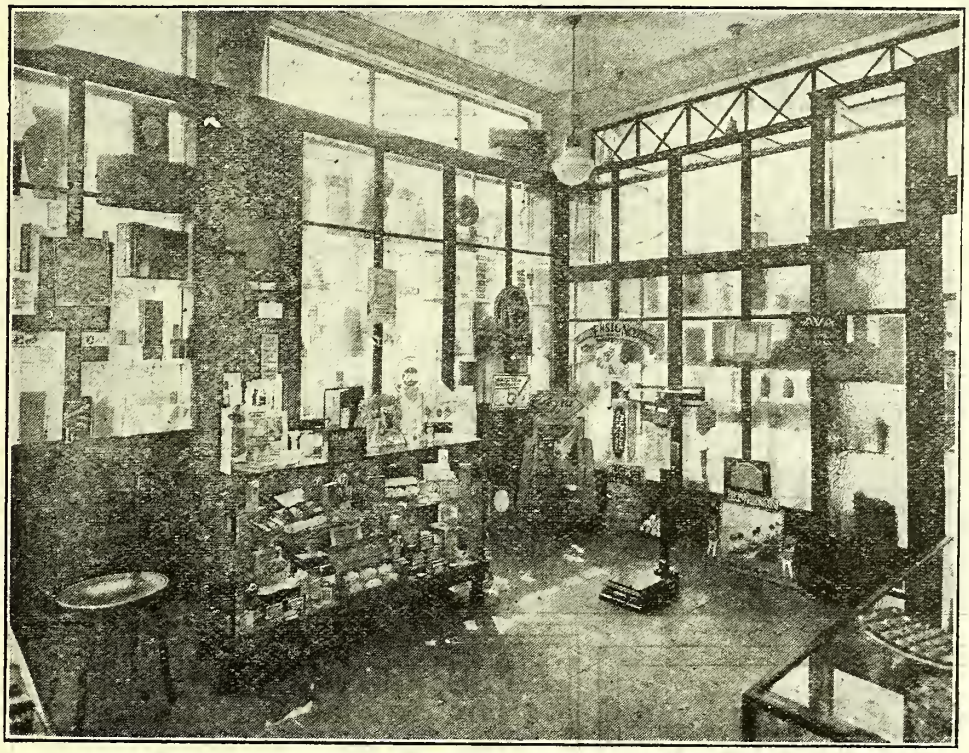


An illustration of a typical modern small pharmacy shop front in bronzed metal and mahogany.
(By kind permission of The Surrey Drug Co., Ltd., North Cheam)

Here are illustrations of two recen

Philip Josephs & Sons Ld.
ESTABLISHED IN 1826.

Pharmacies



In this case the illustration shows how a difficult corner position was treated; the side window being utilised as a window display and interior show case combined.
(By kind permission of R. Wood, Esq., Chemist, Windsor & Slough)

rders showing examples of our work

NEW ILLUSTRATED CATALOGUE FREE ON APPLICATION

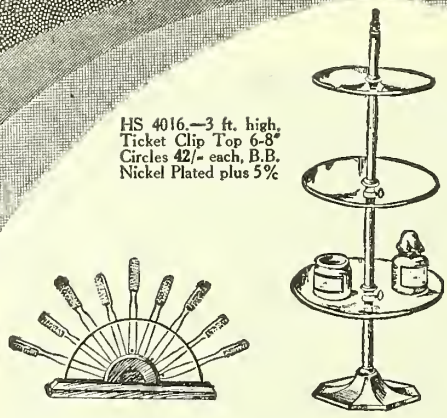
90 & 92 St. John Street, Clerkenwell, LONDON, E.C.1

(Late of Old Street)

Telegrams: "Josiphiah, Smith, London" **Telephone: Clerkenwell 2191**

"PHARMACY FITTERS FOR OVER A CENTURY"

MAKE THE MOST OF YOUR STOCKS



HS 4016.—3 ft. high, Ticket Clip Top 6-8" Circles 42/- each, B.B. Nickel Plated plus 5%

Send for Illustrated Catalogue. Special designs made to Customers' own requirements.



HS 4029. — Tooth Brush Stand. Very stable—Useful for window or counter use. Base of Fumed Oak, metal parts finished nickel plate. Price 3/6 each.

Haskins

SHOPFRONTS AND FITTINGS

Saml. Haskins & Bros., Ltd.

HS 4030.—The "Small-Wares" Stand. Telescoping to 18", Style A, 4½" base and four diamond-shaped shelves, each 7" × 5", and three patent "Tiny T" brackets. Price 22/5

Branches:- GLASGOW MANCHESTER

Display Department 32-34, OLD STREET, (close GOSWELL ROAD) E.C.1 Telephone: CLERKENWELL 3405

Head Office & Works:- WALTHAMSTOW, LONDON, E.17

SD 20-54

Chemists' Fittings

WHEN ? ? ?

you are wanting Shop Fittings it will pay you to send your requirements to

GEORGE COOK

The Chemist's Working Shopfitter.

27 Macclesfield St., City Road E.C.1, LONDON.

30 *Years Fitting Pharmacies*

Rough Sketches Free

SILENT SALESMAN, DISPENSING SCREENS, WALL CASES, DRUG FITTINGS, COUNTERS, WINDOW ENCLOSURES, RECESS AND GOLD LABELLED SHOP BOTTLES

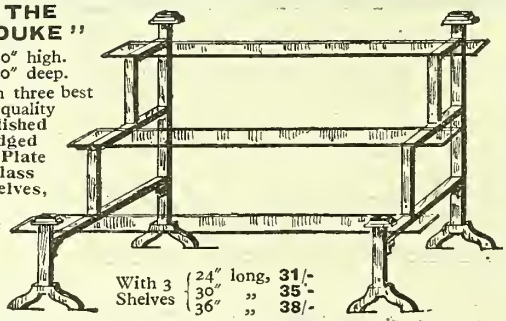
AT LOWEST PRICES

SOLID OAK DISPLAY STANDS

FOR WINDOW OR COUNTER

THE "DUKE"

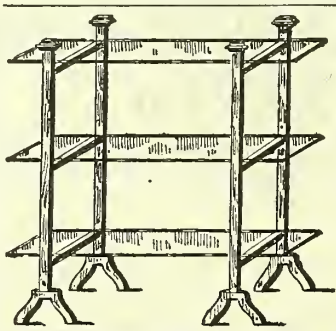
20" high.
20" deep.
With three best quality Polished Edged ¼" Plate Glass Shelves, 6" wide



With 3 Shelves { 24" long, 31/- ; 30" " 35/- ; 36" " 38/- }

PRICE OF STAND WITHOUT SHELVES - 20/-

Nett Prices. Carriage Forward.

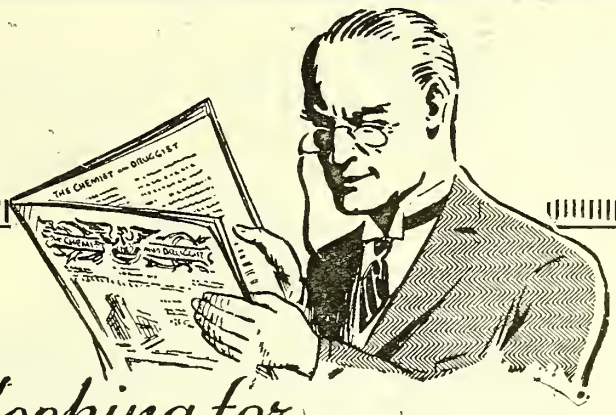


THE "DUCHESS"

Height 36"
Depth 11"
With three best quality 8" wide, ¼" Plate Glass Shelves (Polished Edged).

COMPLETE 42/-
Without shelves, 20/-
Nett Prices.
Carriage Forward.

AYRTON-GRAHAM, LTD., 106, Duke St., Liverpool.



If you are looking for a Profitable line, stock—

AMOGAS

the

DOUBLE STRENGTH AMMONIA

for the

Bath, Toilet, Etc.



Satisfaction to your Customers, combined with a Handsome Profit to yourself, results from the sale of Amogas, The Double Strength Ammonia.

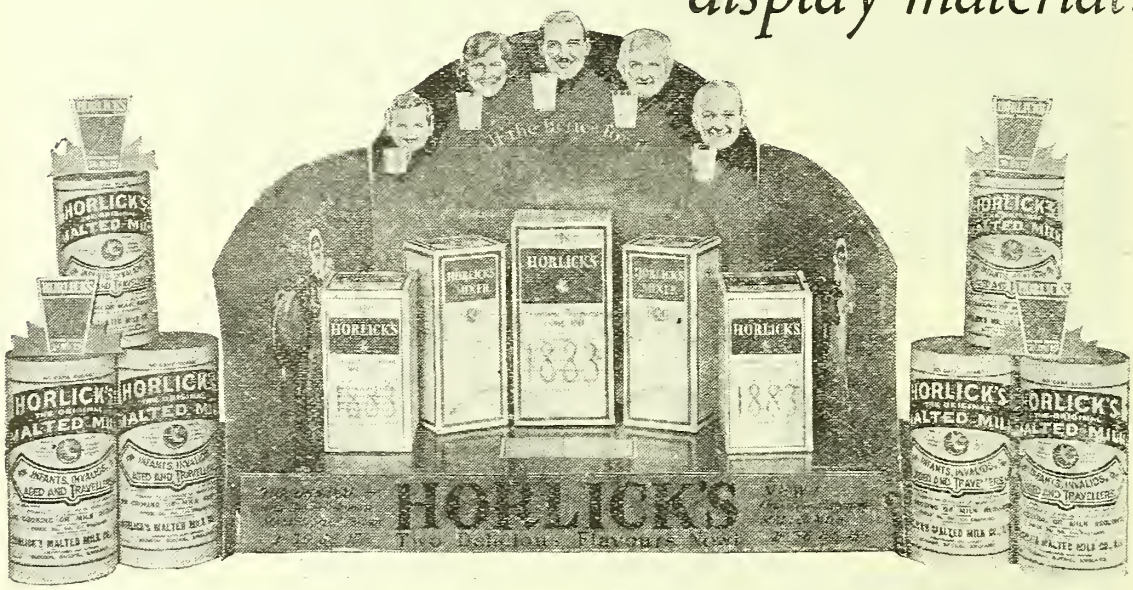
Packed in Bottles, 10½d. and 1/6. Let us send you Display matter for your window.

Write for full particulars to :—

Thornton & Ross, Ltd.
Manufacturing Chemists,
Milnsbridge, HUDDERSFIELD.

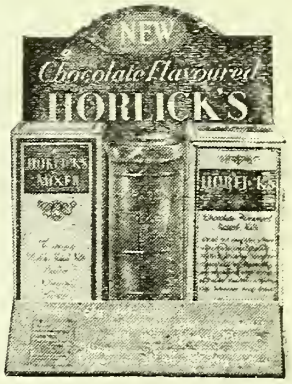
Phone: 179 Milnsbridge.

SEND NOW *for this valuable display material!*



BUY BRITISH

It will help you to profit by the steadily growing demand for Horlick's



To all retailers stocking Horlick's this attractive free display material is now available. It consists of:—

First — a window display designed to show the new Chocolate Flavoured Horlick's, and the Horlick's Mixer (a new, popular fourpenny line), with side displays of the original Horlick's.

Second — two window slips — bright, attractive, striking, yet easy to fix up — in chocolate and orange, size 16in. by 4in.

Third — a counter display with dummies of a Chocolate Flavoured Horlick's, and the Mixer carton, and an unwrapped Mixer.

Send in your request for this valuable display material today. It will help you to profit by the growing demand for Horlick's products — a demand that a forceful campaign of advertising is making steadily greater.

If stocks of Horlick's are low, now is the time to replenish them. Generous, carriage-paid terms have recently come into force.

To the new £3 parcel the important discounts apply which formerly applied only to larger lots. £10 parcels also carry an extra discount. Write for particulars.

HORLICK'S *Malted Milk Company Ltd.*, SLOUGH, BUCKS.

Telephone: Slough 265 (3 lines) *Telegrams:* Horlick, Slough
Manchester Office - 30 WITHY GROVE
Telephone: City 5241 *Telegrams:* Hormilko, Manchester

**NEW!
HORLICK'S *Chocolate Flavoured*
Malted Milk**

CARNEGIE CHEMICALS

REGISTERED CARNEBROS TRADE MARK

ACIDS		BENZOATES
Acetyl Salicylic	ALOIN	Ammon.
Benzoic	CHRYSAROBIN	Soda
Chrysophanic	Fine GOA Powder	BROMIDES
Diethylbarbituric	EPHEDRIN	Ammon.
Lactic 1.21	MENTHOL	Potash
Salicylic	*Mint Oil*	Soda
Tannic	STRYCHNINE	CITRATES
ALKALOIDS	*and Salts*	Ferri et Ammon.
Arecoline	BRUCINE	Potash
Atropine	*and Salts*	Soda
Berberine	SANTONIN	RESINS
Caffeine		Jalap
Cantharidine		Podophyllin
Emetine		Scammony
Eserine		Etc.
Hyoscine		Etc.
Pilocarpine		
Quinine		
Veratrine		

ALSO

Manufacturers of Surgical Dressings

WHOLESALE AND EXPORT ONLY

Carnegie Bros.

227-229 ESSEX ROAD, LONDON, N.

Telegrams: "Carnebros, Phone, London." Codes: A.B.C. 5th and 6th Editions Bentley (md Marconi.
Telephones: Clissold 3560 and 2318.

CONTRACTORS TO H.M. GOVERNMENT.

IMPORTANT PRICE REDUCTIONS

Every Pharmacist should know that
SEABURY & JOHNSON'S
MEDICATED AND ADHESIVE PLASTERS
including the world-renowned

MEAD'S and Seabury's OXIDE of ZINC

have been materially reduced in price, which, with the new Trade discounts, brings them into equal competition with all other makes.

You can now stock these 1st quality goods knowing

(1) They will cost you no more than other brands;

(2) They are backed up by years of discriminate use by leading Governments, Hospitals and Surgeons;

(3) Medical men will prescribe and use them more freely.

SOLE DISTRIBUTORS—

FASSETT & JOHNSON, LTD.

86 CLERKENWELL ROAD, E.C.1

AUSTRALIA:
36/40 CHALMERS STREET
SYDNEY, N.S.W.

NEW ZEALAND:
CUSTOMS HOUSE QUAY
WELLINGTON

SOUTH AFRICA:
15 BREE STREET
CAPE TOWN

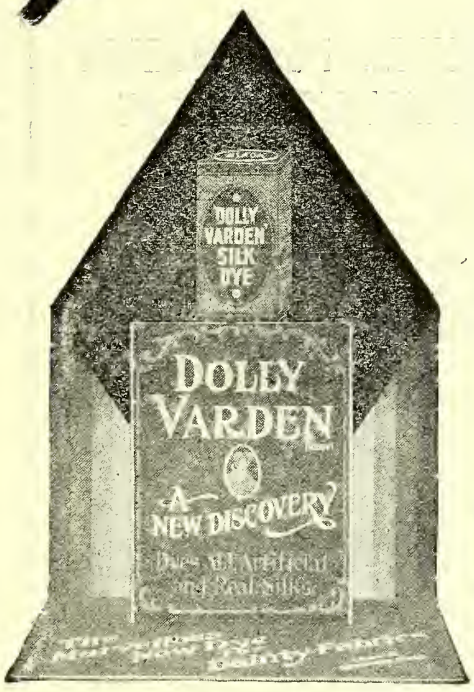
A new discovery

Dolly Varden

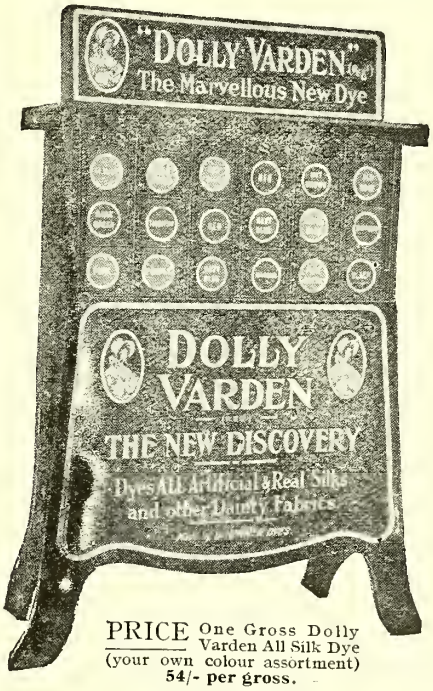
THE MARVELLOUS NEW DYE FOR ALL ARTIFICIAL AND REAL SILKS

Feature this wonderful new dye in your window and counter displays and enormously increase your custom. Dolly Varden is the perfect Dye for all types of SYNTHETIC and REAL SILKS and other dainty fabrics. Easy to use and efficient in action. NO BOILING. Dolly Varden will *dye what ordinary dyes* will not dye—ALL ARTIFICIAL SILKS, which have hitherto presented the greatest difficulties in Home Dyeing.

It is ideal for all fine dresses and lingerie and you can recommend it to your customers with the full assurance of repeat orders, because successful results are guaranteed if the simple instructions are carried out.







With your first order we will send you this handsome display cabinet and window centrepiece which will immediately arrest attention and silently stimulate sales.

Write to-day for full supply of colours.

In 16 shades :—Maroon, Dark Green, Navy Blue, Black, Royal Blue, Old Rose, Red, Nigger Brown, Daffodil, Nut Brown, Mauve, Purple, Tangerine, Pink, Pale Green, Sky Blue.

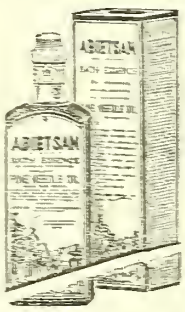
PRICE One Gross Dolly Varden All Silk Dye (your own colour assortment) **54/- per gross.**

(10% discount 28 days.)

Direct or through your usual Wholesale House.

Made by EDGES—BOLTON

ABIETSAN



PROPRIETARIES
ARE KNOWN AND RECOMMENDED BY THE MEDICAL PROFESSION.

ABIETSAN PROPRIETARIES
are ready sellers throughout the year and show a very handsome margin of profit.

GENEROUS BONUS TERMS for Window and Counter Display.

ABIETSAN PINE NEEDLE OIL BATH ESSENCE (U.K. Patent)
28 - doz. Retailing at 3/6.

ABIETSAN MEDICATED AND SUPERFATTED SOAPS

PINE NEEDLE OIL SOAP
BATH SIZE. 6 - doz. Retailing 9d. tablet or 4/3 box of six tablets.
TOILET SIZE. 4 - doz. Retailing 6d. tablet or 1/6 box of three tablets.

WHITE BIRCH TAR SOAP
Toilet size only, in three-tablet boxes. 6 - doz. Retailing 9d. tablet.

PINE TAR SOAP
Toilet size only, in three-tablet boxes. 4 8 doz. Retailing 7d. tablet.

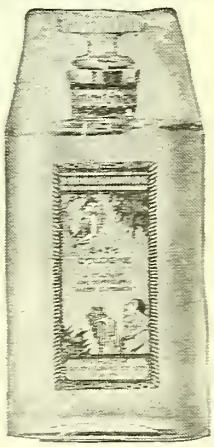
Obtainable from all Wholesalers or direct.

CAPTURED FRAGRANCES
COLOGNE FOR BATH AND TOILET
Duty Free Spirit, not Iso-Propyl Alcohol.
4-oz. 12 - doz. 8-oz. 20 - doz. 16-oz. 36 - doz.
(See Illustration below.)

ALSO AN EXCEPTIONAL RANGE OF HAIR CULTURE AND TOILET LOTIONS.

Every item included in the CAPTURED FRAGRANCES Series is Delightfully Fragrant, and all Prices are competitive.

They are put up in the same pack as COLOGNE for Bath and TOILET, are wrapped in transparent cellulose and unrivalled for quality and presentation.



THEY SELL AT SIGHT.

Samples and Price List gladly sent on request.

Special Packs and Terms for Export and Shippers.

THE ABIETSAN MFG. CO., LIMITED.
Concordia Works,
Managers St., London, E.14.
Telephone: East 4350.

SEND US YOUR NEXT ENQUIRY

RAGNAR SCHJØLBERG
VITA
FINEST NONFREEZING NORWEGIAN
COD LIVER OIL
BODØ · NORWAY

COD LIVER OIL
B.P.

MEDICINAL NON-FREEZING
GUARANTEED GENUINE

LOFOTEN
"VITA" BRAND

PRODUCED BY
RAGNAR SCHJØLBERG, BODØ, NORWAY

entirely in their own large and most modern plant of latest design, from finest quality Pure Lofoten Cod Liver Oil.

Protect yourselves against inferior or mixed oils by placing your orders for "VITA" BRAND.

STOCKS ALWAYS HELD IN LONDON

Full particulars and Samples from

BRUCE STARKE & CO.
— 16 Water Lane —
Great Tower St., LONDON, E.C.3

Sole Agents for the U.K.

TELEPHONE - - - Royal 0137 and 0138.
TELEGRAMS - "Starkemad, Bilgate, London."

Earn the lasting gratitude of your men customers!

A boon to every user of safety razors

Your customers will ask you for this shave-time saver. All you need do is to supply demand. Bland's Solution is NOT competitive—there is no other line of its kind. It is no trouble to handle and shows you a large profit on every sale. See that *your* customers get their Bland's Solution Outfit from *you*, and be sure of their repeat orders. Order supplies TO-DAY.



Simply place the razor in BLAND'S SOLUTION -next morning- every part of the razor is sterilized, clean, & bright-the blade as sharp as ever

Stock and sell

BLAND'S SOLUTION

THE SHAVE-TIME SAVER

BLAND PRODUCTS LTD.

32, Palmer Street, Westminster, London, S.W.1.





Some of the sales-building Daisy advertisements now appearing in the leading British and Irish newspapers and periodicals.

PROFIT

FROM THE INCREASING DEMAND FOR

DAISY

POWDERS

THE demand for Daisy Powders is being steadily increased by consistent advertising in national and local newspapers and family periodicals. As a remedy that has been a household word for 35 years, Daisy possesses the goodwill of all sections of the public. Its success is based on the speedy relief which it brings in cases of headache, neuralgia and nerve pains. For all such complaints Daisy can be recommended with confidence. Its action is gentle and safe, and its results are unfailing. Quick sales, substantial profits, and customers' satisfaction are assured to every Chemist and Druggist who stocks Daisy Powders.

An attractive small showcard, together with trade terms, will be sent on request.

DAISY LTD. HORSFORTH, LEEDS

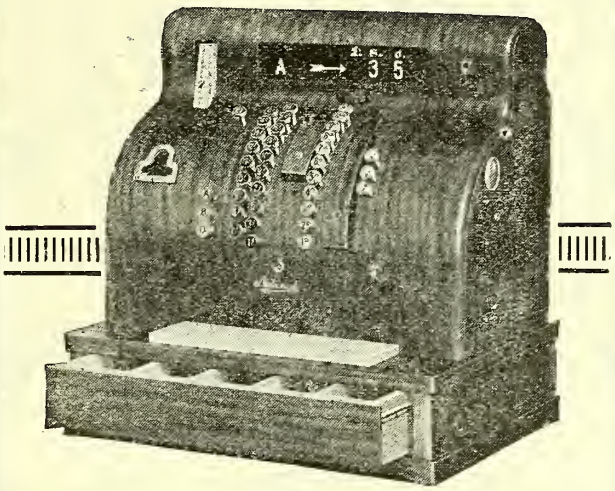
H. DAVIS,
Progress Stores,
14, NORTH STREET,
MANTON.

A--3-5-

JUN 17 0 18

THE ABOVE INDICATES THE AMOUNT OF YOUR PURCHASE.

Front of Ticket.



Thank You!

Your further orders will be greatly esteemed and your kind recommendation much appreciated.

Back of Ticket.

Two Ways of Making More Money

in your business. One is to reduce expense and loss and the other is to increase turnover. You can do both with a

Ticket Printing

NATIONAL CASH REGISTER

The N. C. R. Ticket absolutely guarantees that you get your money—every penny of it. As the ticket is given to the customer, the amount printed on it must be correct. And what is printed is added in the register and must be accounted for. The N. C. R. Ticket definitely increases turnover. You are able to advertise new goods or special lines to your customers who in turn advertise them to their friends.

Retailers who are using

Ticket Printing "Nationals" constantly write us that the N. C. R. Ticket has increased their turnover; sometimes 10%, or 15%, sometimes more. You can see these original letters in our office.

More Valuable Advantages

The N. C. R. Ticket speeds up service, protects customers, assistants and proprietor, prevents disputes over children or messenger trade, stops forgotten charges and forgotten received on account payments and provides a signed voucher for money paid out.

¶ **And you can get a Ticket Printing "National" for £40 on easy terms.**

Post a card for illustrations and descriptions:—

(Dept. C. & D.) The National Cash Register Co., Ltd., 225, Tottenham Court Road, London, W.1

Your Opportunity to QUALIFY in OPTICS

Pharmacists who have adopted sight-testing as an adjunct to pharmacy find it an appropriate, interesting and profitable form of practice. The Pharmacist, by reason of his scientific and technical training, is peculiarly qualified to learn the principles and apply the technique of sight-testing, and to practise it efficiently alike to his own advantage, and that of the public.

EXPERT TUITION—

for the SIGHT-TESTING DIPLOMAS of the Worshipful Company of Spectacle Makers (F.S.M.C.); the British Optical Association (F.B.O.A.); the National Association of Opticians (F.N.A.O.); or the College of Optics (F.C.O.).

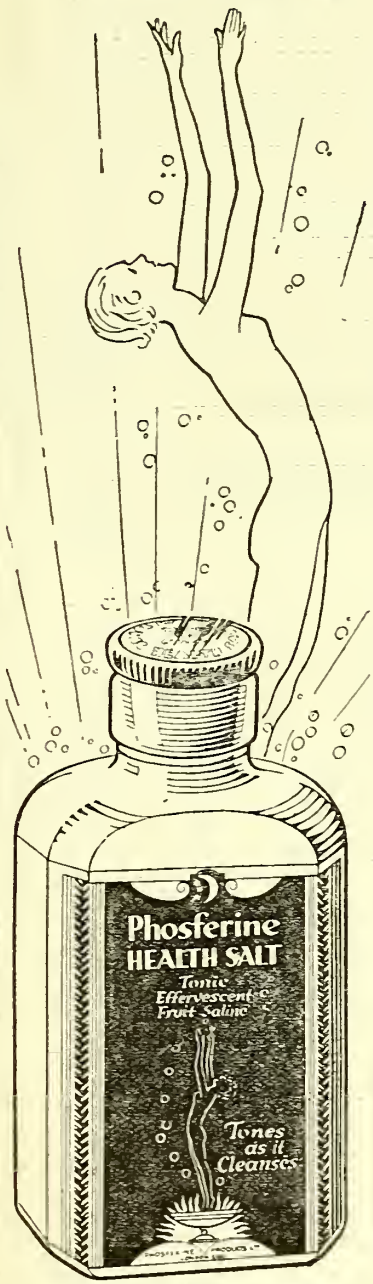
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Case No. 0	3 doz.	1/8 size	2	3	0	3	0	0
,, 1	6 ,,	1/8 ,,	4	4	0	6	0	0
,, 2	9 ,,	1/8 ,,	6	5	0	9	0	0
,, 3	12 ,,	1/8 ,,	8	5	0	12	0	0

2/8 SIZE (DOUBLE QUANTITY)

			COST £	s.	d.	SELLS £	s.	d.
Case No. 4	3 doz.	2/8 size	3	8	6	4	16	0
,, 5	6 ,,	2/8 ,,	6	13	6	9	12	0
,, 6	12 ,,	2/8 ,,	13	2	6	19	4	0

MIXED CASES

		COST £	s.	d.	SELLS £	s.	d.
Case No. 7	3 doz. 1/8 size 1 ,, 2/8 ,,	3	5	6	4	12	0
,, 8	6 ,, 1/8 ,, 2 ,, 2/8 ,,	6	8	0	9	4	0
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THE CHEMIST AND DRUGGIST SUPPLEMENT

42 CANNON ST. LONDON E.C.4

JUNE 29, 1929

This Supplement is inserted in every copy of The Chemist & Druggist.

THE CHEMIST AND DRUGGIST SUPPLEMENT

REVISED ADVERTISEMENT TARIFF.

Businesses Wanted and for Disposal, Premises to Let, Goods for Sale and Agencies—6/- for 50 words; every additional 10 words or less, 6d.

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BOX NUMBER.

In each case replies may be addressed to a registered number or nom-de-plume, c/o this Office, **at a charge of 1/- extra** for each advertisement.

PAYMENT.

All Advertisements are prepaid, so that remittance must accompany instructions in each case. If it be necessary to telephone or telegraph an urgent announcement this may be done, provided the money is telegraphed at the same time.

THE CHEMIST AND DRUGGIST, 42 Cannon Street, LONDON, E.C.4.

Telephone: Central 3617 (3 lines). Telegrams: "Chemicus, Cannon, London" (2 words).

CLOSING FOR PRESS.

MUST REACH US NOT LATER THAN **FIRST POST THURSDAY MORNING.**

ALL ADVERTISEMENTS INTENDED FOR INSERTION IN THIS SUPPLEMENT

CHEMISTS' TRANSFERS.

Messrs. Orridge & Co., 56 Ludgate Hill, E.C.

Telephone No.: CITY 2283.

May be consulted at their Offices on matters of Sale, Purchase and Valuation

1.—LONDON, W. (Distant Suburb).—General Retail and Dispensing Business; established 25 years; turnover about £4,750; net profit exceeds £1,100; double-fronted corner shop, well fitted and stocked; excellent house; bathroom; garden; lease 20½ years to run at reasonable rental; price to be arranged; this business is known to us and is perfectly genuine.

2.—ESSEX (Few Miles Out).—General Retail and Photographic Business, with N.H.I. Dispensing; returns last year £2,014, plus N.H.I. £213; estimated value of stock and fixtures £800; house sublet to cover rent of £120 per annum; lease 17 years to run; price £1,400, plus our commission.

3.—LONDON, E. — Working-class Business, with N.H.I. Dispensing and Post Office; excellent opening for Photographic; returns last year £2,310; net profit £500, plus £150 from Post Office; single-fronted shop; good saleable stock; six-roomed house; new lease will be granted; price £1,650.

4.—LONDON, S.E.—General Retail and Dispensing Business; returns approach £50 weekly; modern double-fronted shop, well fitted and stocked; large house with private entrance; rent £125; held on lease; further details on application.

5.—LONDON (East End).—General Retail Business in working-class district; returns £750 cash, plus N.H.I., about 5,000 scripts per annum; rent and rates £56; sublet £34; held on lease; price £675.

6.—LONDON, N.W. (Central Position).—High-class Retail and Dispensing Business, with Kodak Agency; established many years; turnover for current year will be about £5,250; gross profit 38½ per cent.; single-fronted, lock-up shop, with cellarage; 21 years' lease; rent £300; price £3,250 net.

7.—CITY PHARMACY.—Returns approach £5,000 per annum; main road position; stock and fixtures nearly £2,600; held on lease; price for immediate sale £2,500.

8.—EAST COAST.—Old-established General Retail Business, with Kodak agency; returns average nearly £6,000 per annum at good prices; estimated value of stock and fixtures £2,750; the whole of the premises are used for business purposes; a new lease for 21 years will be granted at £350 per annum; terms, goodwill £2,750, stock and fixtures at valuation; property may also be purchased if required.

9.—SUSSEX.—Retail, Prescribing and Photographic Business; returns last year £2,027 at usual prices; double-fronted main road shop; lease 18 years unexpired; net rent £90 per annum; good house; price £1,400.

10.—NORTH MIDLANDS.—Good-class Retail Business, with Kodak Agency; very old-established; returns £3,600; net profit roughly £700; large shop in principal street; estimated value of stock and fittings £1,400; price of business £2,000; property must also be purchased.

11.—INLAND WATERING-PLACE.—High-class Dispensing Business, with Kodak and Rexall Agencies; returns £2,300; net profit £670; double-fronted shop, handsomely fitted; estimated value of stock and fixtures £1,800; convenient house; new lease will be granted; valuation terms entertained.

12.—MIDDLESEX.—Good-class Retail Business, with Ladies' Hairdressing Department; returns £1,500; scope for considerable extension; double-fronted shop, excellently fitted and well stocked; lock-up pharmacy; new lease will be granted; price £800, less than the value of stock and fixtures.

13.—HOME COUNTY.—Branch Business for Disposal; returns between £20 and £25 weekly, under management; lock-up pharmacy (main road); lease 20 years to run; rent £1 weekly; vendor will accept £250 to effect an immediate sale.

14.—SOUTH WALES (Coast Town).—General Retail and Dispensing Business; returns exceed £3,000 per annum; large double-fronted shop in main road; estimated value of stock and fixtures £1,050; ample living accommodation; price £1,650.

Valuations for Stocktaking

Messrs. O. & Co. desire to emphasize the necessity of a periodical Statement of Account by which means alone **Profit, the Value of Business, &c.,** can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted and eventually becomes confusion and loss.

Messrs. O. & Co. are prepared to undertake these essential duties and make **Special Terms** for such service.

ORRIDGE & CO., 56 LUDGATE HILL, LONDON, E.C.4

The Association of Manfg. Chemists, Ltd.

Business Agency, Transfer & Valuation Department

Head Offices—Kimberley House, Holborn Viaduct, London, E.C.1 (and at 2 Bixteth Street, Liverpool).

PARKIN S. BOOTH, *Valuer.* *'Phone: City* 1261-2-3

BUSINESSES FOR DISPOSAL

1.—CARMARTHENSHIRE.—Old-established Chemist's Business situated in good position on main street, with living accommodation; held on lease for 7-14 years; rent £400 p.a.; returns average £35-40; could be increased; stock approx. £8-900. Further particulars on application. (176)

2.—DURHAM CO.—Chemist Business for immediate disposal; lease can be arranged at £30 p.a. rent; takings £17; Kodak and Ucal Agencies; good living accommodation. (174)

3.—SOUTH WALES DISTRICT.—Old-established Business, situate in main street; rental £52 p.a.; lease for 7 years will be granted. Offers invited.

4.—HULL.—Dispensing and Family Chemist Business in busy thoroughfare (which will shortly become a main road owing to alterations); rent £26 on a yearly tenancy, which can be secured; returns £900 p.a.; lock-up shop; good prospects for a young qualified man. Further particulars on application. (170)

5.—LONDON, E.—Old-established Retail and Dispensing Business; returns £5,600 p.a.; good living accommodation; freehold for sale, or would consider granting a lease; strongly recommended. Further particulars on application. (188)

6.—LONDON, N.—Established Chemist's Business; premises, which include convenient living accommodation, held on lease, 15 years to run; rental £50 p.a.; stock approx. £285; price asked £550, all at. Further particulars on application. (180)

7.—LONDON, N.W.—Retail Dispensing Business on 13 years' lease at £52 per annum inclusive; returns £1,000 p.a.; excellent opportunity for young qualified man. Further particulars on application. (183)

8.—LANCASHIRE (Seaside Resort).—Death vacancy. Old-established Dispensing and Retail Business; lock-up shop under first-class hotel; on lease; returns over last four years average £1,900 p.a.; could be considerably increased under personal supervision; specially recommended. Further particulars on application. (192)

9.—SHEFFIELD (Suburb). — Chemist's Business; recently established; rent 14s. weekly; rates 7s. 6d.; returns approximately £780; could be considerably increased; offers invited. Further particulars on application. (189)

10.—SOMERSET.—Drug and Photographic Business; premises, which consist of lock-up shop with room at rear, held on lease with 8 years to run at a rental of £88 p.a. inclusive; good scope for live man; price asked £400. (178)

11.—SOUTHEND-ON-SEA.—For immediate disposal, Chemist's Business, in busy centre; premises consist of lock-up shop, with Dispensing and storage room; rent £200 per annum, progressive; returns average £1,500, could be increased. Fullest particulars on application. (175)

12.—STAFFS.—Established Chemist's Business; situated on main road; unopposed in Photo and Optics; returns £24 p.w.; scope for increase; lease can be arranged; rent £65 p.a.; price asked, lease and goodwill, £150, fixtures and fittings £150, and stock approx. £450. Full particulars on application. (179)

13.—HAMPSHIRE.—Family Dispensing and Retail Business for immediate disposal; premises held on lease 14-21 years at a rental of £90 per annum, including excellent living accommodation, garage, good garden; old-established business; shop beautifully fitted; returns £1,900; Medical Wine Licence; price to be arranged; full particulars on application. (190)

14.—GLAMORGAN (Seaside Resort).—Handsome lock-up shop; unopposed position in rapidly developing district; large window, on main thoroughfare; on lease at low rental; returns average £1,000 p.a.; splendid opportunity. Applications for further particulars invited. (194)

15.—YORKS.—Dispensing and Retail Business, on lease 7 years at £52 p.a.; rates £32 p.a.; average returns £18 per week; modern house, 8 rooms; splendid opportunity for young energetic man. Fullest particulars on application. (193).

16.—LONDON, N.W.—On lease, 8 years to run, at rental of £78 p.a. inclusive; returns £10 per week; excellent opportunity for qualified man; good opening for N.H.I. Further particulars on application. (195)

17.—LONDON, S.E.—Recently-established Chemist's Business for immediate disposal; lease 18 years to run at small progressive rent; lock-up, double-fronted shop, well fitted in mahogany; returns approximately £900, which can be considerably increased with personal supervision; further particulars on application.

Stocktaking and Valuation of Businesses undertaken at moderate inclusive fee. Chemists are invited to consult us in respect of their requirements in connection with sale or purchase of businesses. Chemists in the North are requested to communicate with our Liverpool Offices.

ERNEST J. GEORGE

invites correspondence from Pharmacists who would be willing to negotiate the sale of their business. An immediate market is available for sound propositions doing £40 weekly and over. All letters are treated with utmost privacy, and helpful advice is given regarding value. The present period would appear to be the high-water mark, and Chemists who for any reason desire a change or retirement would do well to communicate confidentially as above.

A FEW SELECTIONS FROM REGISTER OF BUSINESSES FOR DISPOSAL.

An opportunity occurs for a young and energetic pharmacist to secure a well-established and progressive business on the Continent, conducted on British methods and known as the British Pharmacy; price approximately £6,000; two pharmacists could join with good results.

22.—MIDLANDS.—Excellent opportunity for young qualified man; Drug Store in growing residential district; a personal investigation will readily convince as to potentialities under full qualification; audited accounts; Doctors and Nursing Home near; no opposition; stock and fixtures approximately £300; total ingoing £500, or proprietor would form company and engage qualified lady to take interest.

28.—SUSSEX COAST.—High-class Pharmacy, fully stocked; Library, 200 books; lady assistant; new fittings; 20 years' lease; rent £96; rates £30 p.a.; average £35 p.w. (only opened 9 months); excellent prospects; N.H.I. 300 per month; house attached, electric all through, 5 rooms, bathroom (h. & c.); price £2,000.

29.—ESSEX COAST (Growing District).—Family and Dispensing, with Photographic; no opposition; present turnover £1,100; good house; property can be bought, or rented at £52 p.a.; good opportunity for "live" pharmacist; price of business £700.

42.—LONDON, S.W.—Well-established lock-up Pharmacy, drawing on large area; no opposition; turnover £1,170; long lease; rent £52 p.a.; Kodak Agency, N.H.I., and good Prescribing; price £725.

On application particulars of businesses in all parts and to suit varying requirements will be sent in confidence.

3 St. Paul's Close, Walsall

Telephone: WALSALL 3774.

7 Southampton Row, W.C.1

Telephone: HOLBORN 8158.

BERDOE & FISH CHEMISTS' VALUERS & TRANSFER AGENTS

41 Argyle Square, KING'S CROSS, W.C.1

(One minute from St. Pancras and King's Cross Stations.)

1.—WYE VALLEY (Near).—Old-established, high-class Business in very best position of market town; returns over £3,000; good profits; audited books; modern pharmacy and large house; long, valuable lease; price about £2,200.

2.—ESSEX (Health Resort).—Good unopposed Chemist's Business returning last year £1,156; net profit over £300; no N.H.I.; own property; lease granted; good house with large garden and garage; owner retiring; price £700.

3.—SURREY (Banks of Thames).—Good-class Business, in very best position, growing district; returns £1,900; modern pharmacy with flat over; good stock; price £1,500.

4.—EAST MIDLANDS.—Light Cash Retail, Dispensing and Photographic Business, in busy town; returns £1,200; plenty of scope; same hands 40 years, and retiring; price £800.

5.—SOUTH WALES (Popular Seaside Resort).—High-class Cash Retail, in main shopping centre; returns £3,100; good house; large pharmacy; heavily stocked; price £1,650.

6.—SOUTH COAST.—Good-class Retail and Photographic Business, with exceptional sale of own specialities; returns, under manager, £1,450; plenty of scope; central position; handsomely fitted pharmacy and good stock; price £1,050.

7.—LONDON, N.W.—Sound Light Cash Retail, with Kodak and Rexall Agencies; returns average £2,500; good profits; long lease; lock-up shop; well stocked; price for early sale £1,350.

8.—LONDON, S.E.—Well-established Drug and Photographic Store, with Gramophones; returns £1,600; net profit £325; audited figures; good house and shop; illness sole cause of selling; price £550, plus stock at valuation.

9.—CRYSTAL PALACE DISTRICT.—Old-established light suburban Retail, in good position; returns £1,265; net profit nearly £400; audited books; good house; well stocked; price £850.

10.—WESTERN SUBURB.—Good-class Light Retail and Dispensing; returns £20 weekly, increasing; well-fitted pharmacy (lock-up) and good stock; price £650.

11.—LONDON, S.W.—Good-class light suburban Retail; returns over £1,500, under manager; good position; scope for increase; modern pharmacy; well stocked; price £975.

BUSINESSES WANTED.

BERDOE & FISH are in immediate want of sound Businesses up to £4,000, and cordially invite correspondence from intending vendors. We have a large number of cash buyers waiting, and are able to negotiate sales quickly and without publicity. Transfer Offices, 41 Argyle Square, King's Cross, W.C.1. Estab. 1870. Telephone: Terminus 3574.

THOS. TOMLINSON & SON

Chemists' Valuers,
Chemists' Transfer Agents,
Chemists' Stocktakers,
Chemists' Accountants,
Chemists' Income Tax Experts,

45a Market Street,
MANCHESTER.

Invite Correspondence *re* Purchase or Sale of Businesses, Stocktaking, etc.

Over Fifty Years' Establishment.

Telegraphic Address: **"TOMTOM."**

If you require the services of a VALUER for the SALE or PURCHASE of a CHEMISTS' BUSINESS, write to me.

CHARLES E. NAYLOR

CHEMISTS' VALUER.
170 Vesper Road, Kirkstall, LEEDS.
Tel.: Horsforth 324.

CHARLES C. MARSDEN

CHEMISTS' VALUER, TRANSFER AGENT & STOCKTAKER
44 SHOLEBROKE VIEW, LEEDS.

Yorks. West Riding. Unopposed Pharmacy with house. Very low overhead charges. Returns £1,000 at good profits. Two owners in 58 years, vendor retiring. Pretty country. Price £550. Leeds. Nicely fitted Drug Store with house. Rent £30. Estab. 30 years. Neglected. Thickly populated district. Price £250.

BUSINESSES WANTED.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

WANTED,

SOUND BUSINESSES in good positions; groups of shops considered; accountant's figures required.

NO AGENTS.

Strict confidence observed. 9/33, Office of this Paper.

SHOULD any Chemist in London or near wish to dispose of his Business privately, will he kindly communicate with advertiser, giving general particulars in first letter; details at interview, which can be granted immediately; strictest confidence will be observed, and bankers' references supplied; advertiser is private chemist, prepared to pay cash and take over immediately if desired; living accommodation not necessary. 10/28, Office of this Paper.

PREMISES TO LET.

COLCHESTER.—New Arcade nearing completion, situated in real live shopping centre; offers every facility for shopping, whether wet or fine; ideal situation in ready-money part of town; moderate rents; seek further particulars. Chemists should inquire.

SHOPS with Flat over to Let on lease in excellent position at Bromley; suit Chemist. Apply Baxter, Payne & Lepper, opposite G.P.O., Bromley, Kent.

AGENCIES.

A LEADING German Celluloid Toothbrush and Nailbrush Factory, Adalbert Denes, Dresden, N.15, seeks Agent with established excellent connections to the trade.

WELL-ESTABLISHED Firm in the Irish Free State seek representation of first-class Chemist Sundry House; can carry stock. Box 3539, Guilfoyle's Advertising Agency, 179 Pearse Street, Dublin.

We desire particularly to draw the attention of Colonial and Foreign Subscribers to the fact that in cases where they require partners, agents or assistants, or wish to sell their businesses, an Advertisement in this Supplement, placed in every copy of "The Chemist and Druggist," should be the readiest means of helping them to attain their object. The tariff for such announcements is given under the appropriate headings in the Supplement. Instructions and remittances can be sent to us direct or through the advertisers' correspondents in this country.

BUSINESSES FOR DISPOSAL.

The Advertiser may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

LINCOLNSHIRE.—For Sale, one of the best Village Mixed Drug Businesses (not the manure business) in the county; house and well-stocked shop; good reason for disposal. Shepperson, Kirton, Boston.

LIVERPOOL.—Well-established Business for disposal in growing suburb; modern house; turnover about £30 weekly at good profits. All particulars and information given to genuine inquirers. 10/23, Office of this Paper.

LONDON, W.—Good-class Dispensing and Family Business for Sale; Kodak Agency; returns £20 per week and capable of large increase; £150, plus stock, and fixtures at valuation (about £450); to a bona-fide buyer part could remain. Apply 11/13, Office of this Paper.

MIDLAND TOWN (Main Road).—Light Retail, Kodak, N.H.I., etc.; suit elderly or beginner; turnover at present small, but increasing; good living accommodation, lease, etc.; good reason for disposal; will accept valuation of stock and fixtures for quick sale. 151/367, Office of this Paper.

SOUTH COAST Resort.—Fine opportunity of securing a sound, well-established, progressive Business; double-fronted, well-fitted lock-up Pharmacy; turnover £1,250, at exceptional profits and scope for rapid development; price £950 all at. 11/18, Office of this Paper.

WEST MIDLANDS (Cathedral City).—General Retail and Dispensing, with live Kodak Agency, Wine Licence; established century; returns exceed £2,000, certified; lease; living accommodation; main thoroughfare; distant opposition; £2,200, inclusive. Write 9/23, Office of this Paper.

WEST RIDING.—Old-established Pharmacy, with Photographic, in residential suburb of manufacturing town; splendidly situated; no immediate opposition; lock-up shop; rental £26 and taxes; 10 years' lease (9 unexpired); returns £1,230, with good profits, increasing (audited figures); N.H.I. average 300 per month; price £950. For further particulars apply "W. J.," 151/358, Office of this Paper.

A SOUND, newly-established Business, doing, under unqualified girl, £15 to £16 per week; the shop is in a new and growing area, five miles from Birmingham; well stocked and fitted; no house; rent £1 week; price valuation stock and fixtures about £300, and goodwill £50; references required. 150/329, Office of this Paper.

EXCEPTIONAL Offer.—Health resort: Essex coast: four minutes from sea; no opposition; population 2,500; rapidly developing; established 26 years; vendor retiring; Dispensing, Prescribing and good-class Retail; returns £1,200; no N.H.I.; large house and garden; freehold; premises to Lease or Sell; business stock, fixtures and goodwill £700; trade or bank references asked for to ensure bona-fides. 11/28, Office of this Paper.

FOR Sale as a live concern, old-established Business, with Wine Licence, Kodak Agency, good Optical connection, in best position in country town; well-fitted shop, excellent house and garden; property, which is freehold, can be bought outright or leased with option to purchase; bankers' references required; no idle inquiries, please; Chemists with F.S.M.C. or B.O.A. qualifications preferred; would consider a gentleman as Manager, salary reasonable, with view to succession. 151/359, Office of this Paper.

FOR Sale.—West Wales Chemist's Business; seaside and agricultural area; attractive shopfront; excellent fittings, good reasons disposal; purchase freehold optional. 11/27, Office of this Paper.

MANUFACTURING Perfumery Business; old-established, fully equipped works; open to consider sale or amalgamation with allied house or Toilet Soap Makers. Replies treated in strict confidence. 151/356, Office of this Paper.

APPOINTMENT.

BIRMINGHAM CENTRAL TECHNICAL COLLEGE.

APPLICATIONS are invited for the post of Lecturer and Demonstrator in Pharmacy. The position is a whole-time appointment, commencing on 1st September next. Candidates must possess the Major qualification of the Pharmaceutical Society. Preference will be given to applicants who also possess a Science Degree and some teaching experience. Salary in accordance with the Burnham Scale. Particulars of the appointment will be sent on receipt of a stamped addressed foolscap envelope by the Principal of the Central Technical College, Suffolk Street, Birmingham, to whom applications, on the special form provided, should be returned by July 13th.

P. D. INNES, Chief Education Officer.

SITUATIONS OPEN.

RETAIL [HOME].

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

BIRMINGHAM.—Qualified Manager required for a middle-class business; preference will be given to a young married man, as there is a good house attached to this business. Full particulars in first letter as to age, salary, experience, etc., will greatly oblige. 11/230, Office of this Paper.

LIVERPOOL DISTRICT.—Qualified (male) to manage lock-up shop; middle class; N.H.I.; experienced; age 25-35 (preferred). Full particulars, etc., to Mr. D. G. Wright, 274 Old Chester Road, Rockferry, Cheshire.

LONDON.—William Whiteley, Ltd., have a vacancy for a Qualified Man Dispenser, 25-35 years of age. Apply Staff Controller, Queen's Road, W.2.

LONDON, W.—Unqualified Junior Assistant; must be a quick, accurate Dispenser and used to N.H.I. work; permanency. Give full particulars of experience, age, salary required and when at liberty, to P.C.B. 41/12, Office of this Paper.

LONDON, S.E.—Qualified Manager (married) required; the position is suitable for a keen young man anxious to prove his worth; the business is in an industrial area, where a quick cash and N.H.I. business is carried on. When applying please state salary required, age, particulars of experience, etc., to 11/233, Office of this Paper.

LONDON, S.W.—Capable, Qualified Manager required for nice-class Family Business; this shop has been under indifferent management and there is plenty of scope for a man with smart ideas for making a good increase of turnover; any assistance will be given to the selected applicant. Kindly give particulars of experience, salary required, age, etc. 11/232, Office of this Paper.

LONDON, W.C.—A really smart Assistant required for a good-class business in main thoroughfare; keen, polite Counterman essential. Please send references and state in letter salary required, age, etc. 11/234, Office of this Paper.

LONDON, S.E.—Qualified man immediately for easily worked branch; middle class; N.H.I. and Photography. Please state age and salary (outdoors) to 152/372, Office of this Paper.

MANCHESTER.—Capable Qualified Manager wanted, with J.C.Q.O. Diploma, for Cash Retail and N.H.I. Dispensing; knowledge of Photography; permanent. State full particulars, including age, experience, salary, and copy references. Lateswards, Ltd., 389 Ashton New Road, Manchester.

MIDLANDS. — Chemist-Optician wanted for high-class Pharmacy; must be a good Dispenser. State full particulars in first letter. 10/21, Office of this Paper.

STAFFORDSHIRE.—A vacancy occurs for a Qualified Manager (single) to take charge of a good-class business situate in the main street of a busy town; applicants must have had good experience of this kind of business. Give full particulars, age, salary required, and when at liberty, etc., in first letter. 11/237, Office of this Paper.

UNIVERSITY COLLEGE HOSPITAL, Gower Street, W.C.1.—Wanted, Assistant Dispenser, holding Pharmaceutical Society's qualification; hours 9 to 5; Saturdays 9 to 1; 6 hours' additional duty every fourth week; salary £200 per annum, rising by annual increments of £20 to £260. Apply to H. Davis, Pharmacist.

WOLVERHAMPTON.—Qualified Manager required for a busy middle-class business situate in the suburbs; there is a Wine Licence attached, and applicants must have a good personality and be thoroughly reliable. Give full particulars of experience, age, salary, etc., to 11/231, Office of this Paper.

A VACANCY occurs for a well-educated Lady Assistant near Birmingham; the position is progressive and offers good scope for an experienced assistant who is keen and energetic. Please give all details in first letter. 11/23, Office of this Paper.

ASSISTANT wanted, aged about 24 years; good Dispenser; single; unqualified; outdoors; permanency. State age, height, experience, references, salary required, and when disengaged, to H. Barnett, Chemist, Hythe, Kent.

PHOTOGRAPHS, TESTIMONIALS, &c.

When answering advertisements in this section applicants are strongly advised not to send (unless specially requested) ORIGINAL TESTIMONIALS or VALUABLE PHOTOGRAPHS. As can be readily understood, when an advertiser receives from 60 to 100 replies the task of returning photographs, testimonials, &c., is one of some difficulty.

EXPERIENCED Junior Assistant required for London, W.; must be used to a middle-class trade and have had Dispensing and Counter experience. Please state age, salary required, etc., to 11/236, Office of this Paper.

LADY Dispenser (Hall) required for small Hospital, London, N.W., from July 29 for 3-6 weeks; two hours daily or longer, alternate days. Miss Matthew, 26 Priory Court, N.W.6.

LADY Dispenser and Book-keeper; Hall qualification. Apply, stating age, experience and salary (outdoor), and giving recent references, to Drs. Bishop and Manson, Nottingham Street, Melton Mowbray.

LADY Assistant required for a business in East London in industrial area; applicants need not be qualified, but must be good Dispensers and have had Counter experience. Kindly oblige by giving full particulars of experience, salary, age, etc. 11/235, Office of this Paper.

PHARMACIST.—Active, Qualified Assistant required, either sex, to build up business in growing part of Leicester; knowledge of Photography an asset; good Window-dresser State salary required, which must be moderate, but progressive, and when free. 11/24, Office of this Paper.

QUALIFIED Assistant wanted as Manager, Chemist Department, in good-class Store Business. Apply, with full particulars, to Seth Harry, Ltd., Okehampton, Devon.

QUALIFIED Manager for branch required immediately; London, E.; N.H.I. and Counter; Photographic and Optics advantage. 151/357, Office of this Paper.

QUALIFIED Dispenser, Locum, required; any two weeks between July 6 and August 3; state terms. "Dispenser," Public Medical Service, 49 High Street, Salisbury.

QUALIFIED Locum (male or female) required from July 5 to August 3. Apply, stating salary required, to J. W. Noble, Secretary - Superintendent, Royal Salop Infirmary, Shrewsbury.

QUALIFIED Lady Assistant required for Family and Dispensing Business in North London; applicants must be smart at the Counter and be accurate Dispensers. Give full particulars of age, salary, previous experience, etc. 11/238, Office of this Paper.

QUALIFIED Lady for light Retail and Dispensing. State full particulars and salary required. 12/30, Office of this Paper.

RELIABLE Qualified Married Assistant; live over premises; rent and rates paid; Photographic work put out; qualified senior in charge; several assistants kept. Apply, stating salary required, Neve & Co. (Harold E. Skyrme), Chemists, Hastings.

UNQUALIFIED Assistant wanted; permanent; age about 24; quick and reliable Dispenser, good Counterman. State age, height, experience, references, salary required and when disengaged. R. T. Christopher, Silver Street, Bradford-on-Avon.

UNQUALIFIED Assistant required; must be good Window-dresser, quick Dispenser and accustomed to middle-class trade. Usual particulars, together with photograph if possible, to Bagshaws, Newton Heath, Manchester.

WANTED, lady Dispenser-Book-keeper in Panel and working-class practice; salary £2 10s. (outdoor). Dr. Garrett, Eastleigh, Hants.

WANTED, capable Dispenser and Book-keeper by doctor. Apply (by letter) to Lewis N. Jekyll, Gainsborough House, Leytonstone, E.11.

WANTED, Improver, one just finished apprenticeship, with knowledge of Dispensing and Photography. Apply, stating salary and experience, Wilkie, Chemist, Charlton, S.E.7.

YOUNG and energetic Manager (qualified) required for relief duties; the work will extend to the end of September, and a permanent managership will be given to an applicant who proves his worth; this is a rare opportunity for a man who wishes to gain wide and varied experience before settling down. All particulars in first letter, please. 11/239, Office of this Paper.

WHOLESALE.

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

LONDON AND HOME COUNTIES.—One or two forceful Salesmen to obtain distribution for new non-competitive line; experience and good connection essential; no objection to other non-competitive line. Apply, with full particulars and area worked, to 151/368, Office of this Paper.

A LONDON Firm of Manufacturing Druggists require at once a Laboratory Hand with experience in Ointment, Mixture and Syrup-making. State age, experience and wages required. P.C.B. 41/3, Office of this Paper.

EXPERIENCED Traveller for Northern Ireland required, preferably with Pharmaceutical qualifications, to represent old-established firm of English Wholesale Druggists. 151/361, Office of this Paper.

MANUFACTURERS of Covers for Hot Water Bottles invite applications from Travellers able to carry this line. State full details, including area covered. All classes of covers in velour, plush, etc., for rubber, metal and earthenware bottles. P.C.B. 40/32, Office of this Paper.

PERFUMERY Manufacturers require the services of a first-class Sales Manager who can build up sales in Perfumery and Toilet Goods; must know the business thoroughly and be able to secure business and produce lines if necessary; replies treated confidentially. Full particulars of present and past experience, etc., 151/370, Office of this Paper.

WEST-END Hairdressing Firm.—Wanted, Men accustomed to Perfumery Toilet Preparations; part time only. Please state particulars, salary required. 151/363, Office of this Paper.

(COLONIAL, INDIAN AND FOREIGN.)

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The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

BRITISH COLONY.—A firm of European Chemists in a British Colony have a vacancy for an Assistant with the qualification of the Pharmaceutical Society of Great Britain; salary £350 per annum, duty allowance, 18 months' engagement, free quarters and first-class passage out and home; generous leave on full pay on re-engagement. Apply 151/360, Office of this Paper.

ITALY.—Two Qualified Assistants required for first-class Pharmacies in Florence and Rome; must be neat and accurate Dispensers, of good appearance and address, and good Countermen; previous Continental experience an advantage, but not essential. Full particulars in first letter, stating age, experience, and enclosing photograph, which will be returned. H. Roberts & Co., Florence, Italy.

MADRAS. — Chemist (Pharmaceutical). Young Assistant required for India (Madras) by old-established firm; salary about Rupees 500 monthly, rising annually rupees 25 per mensem; 4 years' agreement; unmarried; capable Dispenser; must have Minor qualifications; passage paid. Write, giving full particulars of age, experience, etc., to Box "Y. Q.," c/o Davies & Co., 95 Bishopsgate, London, E.C.2.

NAMES AND ADDRESSES.

When sending advertisements for any of the sections in this Supplement, advertisers—as a guarantee of good faith, and not necessarily for publication—should always give their names and addresses. It sometimes occurs that this rule is not followed and delay and disappointment ensues. Strict attention to this detail will be appreciated.

SITUATIONS WANTED.

RETAIL [HOME].

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

AQUALIFIED Chemist, 27, as Manager; sound references; 10 years' experience in all branches, and knows his job; North London district preferred. 11/40, Office of this Paper.

AS a good all-round General Assistant, Manager, Senior or Locum; used to busy business, good Dispensing and heavy Panel; Counter, as Salesman; keen buyer, accountant, and trustworthy; right-hand man; 20 years' experience limited companies. "G.," 130 Scott-Ellis Gardens, N.W.8.

ASSISTANT, 20, unqualified, 3½ years' experience, N.H.I. Dispensing, Counter and Window-dressing, seeks situation immediately; height 5 ft. 10 in. Crooks, 1 Victoria Terrace, Coundon, Bishop Auckland, Durham.

ASSISTANT, unqualified, 28, good all-round experience, seeks permanency or Locum. "M. J.," Eversley, 148 Foleshill Road, Coventry.

ASSISTANT, 37, seeks permanency; West Country; all-round experience; unqualified, but competent; taken charge; 4 years present situation. 11/21, Office of this Paper.

ASSISTANT (passed Part I) wishes Locums in London till August 17; free now. Rodney, 33 Rodney Road, Walworth, S.E.17.

DISENGAGED.—Manager; qualified; 35; tall; energetic; all-round Counter and Dispensing experience; good Window-dresser; North or Midlands preferred. B. Mills, 77 West Street, Crewe.

DISENGAGED 29th; Locum; active, obliging, middle-aged; unqualified; July 22 in Lincolnshire. "Chemist," 91 Duncombe Road, Holloway, N.19.

DISPENSER (Hall) requires post with Doctor; experience Dispensing with Chemist. 151/365, Office of this Paper.

DISPENSER (Hall), woman, 8 years (reference, London), seeks London post; Hospital preferred; part-time or Locum. 151/371, Office of this Paper.

ENERGETIC, capable, gentlemanly, unqualified Assistant seeks outdoor berth; 4 years late situation, 12 former; interview needed. "E. S.," 25 Wainfelin Road, Pontypool.

EXPERIENCED Assistant desires post; 7½ years present situation; 6 years last; capable manager and worker; well recommended; 38; married; good appearance. "Swift," 11/17, Office of this Paper.

FOR SEPTEMBER.—Young, qualified, married, present excellent but non-progressive West-End post for past 3 years, desires appointment offering fuller scope; South-West England preferred. 6/1, Office of this Paper.

IMPROVER desires post for about two months, commencing July 8; experienced, Dispensing, Photography. Fox, Nottingham Road, Somercotes, Derbyshire.

IMPROVER desires situation with Chemist; knowledge of N.H.I. Dispensing, Photography, Counter, Window-dressing, etc.; 4 years' experience. Write F. Waugh, 1 Keighley Road, Colne, Lancs.

KENT.—Junior Assistant; unqualified; Dispensing, Counter, Photographic; 4½ years' experience; good references; Folkestone or Kent Coast preferred. P.C.B. 41/5, Office of this Paper.

LADY Dispenser, qualified, experienced, requires holiday work, August 19 to August 31; small salary for comfortable post. 279/10, Office of this Paper.

LADY Dispenser-Book-keeper (Hall), 10 years' experience, seeks post London, South Coast, or near, preferred, but not essential. "E.," 12 Grand Parade, Brighton.

LADY as Junior Assistant; good Dispenser and Counter; 3½ years' experience; age 20. Davies, 24 Westhorpe Street, Putney, S.W.15.

LOCUM.—Lady (Hall qualification) desires post as Dispenser or Assistant; disengaged 3 weeks in July. Lea, "Tenbury," Tuffley Avenue, Glos.

LOCUM.—Pharmacist and qualified Optician, J.C.Q.O., F.I.O., 35, active, tall, experienced in all branches, including Photographic, undeniable references, has few vacant dates open. Apply "Reliable," 304 Whitchurch Road, Cardiff.

LOCUM; taking Part II October; disengaged July 8 to August 3. Garbett, 1 Leonard Avenue, Sherwood, Nottingham.

LOCUM; free July 1 to 28; experienced; good references; moderate salary; unregistered. "Reliable," 2 Allertree Road, Fulham, S.W.

LOCUM or Manager; qualified; exceptional experience; all side lines; at liberty from July 1. 11/19, Office of this Paper.

LONDON position required about September; qualified; 28; married; Branch Manager in Lancashire at present; good experience, chiefly quick cash, N.H.I., but a change acceptable; in London July 15-20. 12/10, Office of this Paper.

MANAGER, with a view to succession; cash available; qualified; 43; abstainer; experienced; excellent references; married; Southern County or London suburb preferred. 12/7, Office of this Paper.

MANAGER, qualified, 29, experienced, desires berth; Locum or permanency; could start immediately. Davies, 14 Clitheroe Road, Stockwell, S.W.9.

M.P.S., with all-round exceptional, sound experience and qualifications, is desirous of finding a permanent and responsible management where ability and hard work would be appreciated (no Drug Stores); residence on premises if possible. "Soxos," 151/362, Office of this Paper.

M.P.S., 38, disengaged, requires permanency, West London area or Home Counties; accurate and quick Dispenser; all-round experience; excellent references; 5 years last post. 152/373, Office of this Paper.

PART-TIME work wanted, Dispensing, Stock; 6 hours (to suit); unqualified; 47; thoroughly experienced; highest references. "Syntony," 6 Peel Street, Notting Hill Gate, W.8.

PENSIONED Dispenser, M.P.S., seeks work Locum during season, any part, or suitable permanency in or near London; active; disengaged. P.C.B. 41/4, Office of this Paper.

QUALIFIED; 31; married; well experienced; accustomed responsibility; disengaged July 15. Gregory, Far View, Okehampton.

QUALIFIED, 26, experienced in Salesmanship, Photographics, Optician (late Refraction Hospital), seeks permanency with scope in Optics; or Locum; disengaged 29th; splendid references. "Chemist," 27 Honeage Street, E.1.

QUALIFIED, 30, good all-round experience, desires permanency; Birmingham area preferred; local Locums entertained. Jones, 20 Langley Road, Small Heath, Birmingham.

RESPONSIBLE post as Manager; 40; fully qualified; living accommodation; permanency; first-class experience and credentials; free in one month or less; £5 10s. weekly for most conscientious service. 11/10, Office of this Paper.

UNQUALIFIED; age 30; Dispensing, Counter, and Photography; good references; free one week's notice. "W. W. R.," 23 Comyne Road, Clapham Junction, S.W.

UNQUALIFIED, 24, with 6 years' Retail experience, desires progressive post, any capacity in Wholesale House; free end of July. "R. J. P.," 33 Kilmorie Road, Forest Hill, S.E.23.

WINDOW-DRESSER, 5 years' experience, special training in the art of using crêpe paper, excellent references, seeks permanency. 151/364, Office of this Paper.

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A VALUABLE Chemists' and Doctors' connection in London, Kent, Sussex and Western Counties offered to reputed house; Proprietary lines preferred; salesmanship and propaganda on neglected ground a speciality; good appearance; considerable experience; own car; salary and expenses basis; locate anywhere. "Active," c/o "Kayaness," Minniedale Road, Snrbiton, Surrey.

A POSITION as Salesman is sought by yonng man; energetic and capable; at present disengaged; working knowledge of Pharmacy and Druggists' Sundries; excellent references. 11/31, Office of this Paper.

ADVERTISER wishes to obtain situation as Representative of Manufacturing or Sundries House; good knowledge of Pharmacy and its requirements; excellent references; disengaged immediately. "W.," "Carlton," Herne Bay.

CHEMIST, qualified, requires selling line to represent on commission, which must be liberal. 11/37, Office of this Paper.

TOILETS, PERFUMERY, SOAPS.—Advertiser, proficient in all branches manufacture, seeks berth; London preferred; Creams and Powders speciality; capable buyer; control labour; excellent references. "Iridis," P.C.B. 40/33, Office of this Paper.

UNQUALIFIED (young), with exceptional sound experience with several first-class firms; accustomed to responsibility; has personally prepared in large quantities B.P., B.P.C., Toilets and Proprietaries; specialises in Compressed Tablets (plain and coated), also Pills and Capsules; excellent references. Write "Queux," 6/5, Office of this Paper.

YOUNG man, 25, sound Pharmaceutical experience, seeks position as Representative-Salesman on salary-expenses basis; own car; would reside anywhere; energetic and earnestly desirous of obtaining a situation with prospects. Webster, Clarence House, Friern Park, N.12.

YOUNG gentleman, keen, capable and enthusiastic, seeks position as Representative in Midlands; thoroughly conversant with all branches of Pharmacy; 14 years' experience in highest class Retail and Wholesale. For full details apply "Worker" 12/2, Office of this Paper.

(COLONIAL, INDIAN AND FOREIGN.)

PHARMACIST, 26, single, University education, speaking French and German fluently, desires position in German-speaking country; intelligent knowledge of business methods; splendid Retail references. BM/YYNL, London, W.C.1.

Price lists, trade circulars, samples, and printed matter can in no case be forwarded, the Box numbers being intended exclusively for specific answers to particular advertisements. The Publisher reserves the right to open and refuse to forward any communications received which he may consider contrary to this rule.

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FOR SALE.

CINE-KODAK, Model B, F. 3.5, with carrying case; Kodascope, Rewind Model C, with carrying case, resistance for same; Kodascope Screen, No. 1A; all new and unused. What offers? 151/366, Office of this Paper.

MISCELLANEOUS.

EDITORIAL ASSISTANT.

THERE is a vacancy on the Editorial Staff of THE CHEMIST AND DRUGGIST for a Pharmacist (not over 30 years of age) with a sound knowledge of Pharmacy and the Drug Trade generally. Particulars, in writing, and photograph (to be returned) to "M. B.," Office of this Paper.

GREAT BARGAINS IN CHEMISTS' SHOP FITTINGS.—Wall Fittings, Counters, Silent Salesmen, Counter Cases, Wall Cases, Perfume Cases and Desks, Dispensing Screens, etc., etc. PERCY R. E. JOSEPHS, 68 Old Street, London, E.C.1. Illustrated Catalogue post free on application. Estimates and sketches free. Telephone: Clerkenwell 0929.

SECOND-HAND CHEMISTS' FITTINGS.—We have an exceptionally fine selection of these in all sizes; prices are right, and goods are in first-class condition; we shall be pleased to supply particulars and prices. Call or write, RUDDUCK & CO., 219 Old Street, London, E.C.1.

SHOPFITTINGS.—Chemists requiring Shopfittings and Showcases of quality, backed by 103 years' experience, at to-day's lowest prices, should apply to PHILIP JOSEPHS & SONS, LTD., 90/92 St. John Street, Clerkenwell, London, E.C.1. Telephone: Clerkenwell 2191 "Pharmacy Fitters for over a Century."

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EXCHANGE COLUMN.

FOR DISPOSAL.

P.C. KLITO, double extension, Aldis 6.3, 12 slides, adapters, frames, etc.; good condition; offers. Kemp, Croft Pharmacy, Crowborough.

WEIGHING MACHINE, by Avery, with height recorder; cost £16; accept £4, or near offer; good condition. Apply Bird & Storey, 42 Eastcastle Street, W.1.

WANTED.

TOILET SOAP PLANT wanted, complete; must be in perfect order. State lowest price and full details of output, etc. 151/369, Office of this Paper.

GOWER, Chemists' Bookseller, 41 Voltaire Road, Clapham, wants Pharmaceutical Books, including Pharmaceutical Formulas, B.P.C., P.J.F., Optical Books.

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